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PROLONGED LABOR, WITH SPECIAL REFERENCE TO POSTPARTUM HEMORRHAGE

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Prolongation of labor beyond the commonly accepted normal maximum of thirty hours is not only a trying experience for the patient and her family (and for the obstetrician) but also imposes certain considerable maternal and infantile risks. In the child, recent investigations [1] emphasize the frequency of death from bacteremia and pneumonia; and in the mother, the course of events may lead to intrapartum fever, shock, sepsis and, sometimes, a fatality.[2] The chief of these complications, which is related to the increased danger of intrauterine infection, especially with early rupture of the membranes, has been discussed elsewhere.[1c] In the course of that study it became apparent that postpartum hemorrhage was more frequent than usual following prolonged labor. This prompted the present investigation.

By definition, a labor lasting thirty hours or more is designated "prolonged," one that terminates within three hours is "precipitate" and the remainder are "normal" so far as duration is concerned. When the total loss of blood (measured and estimated) is 600 cc. or more, postpartum hemorrhage is diagnosed.

Among 15,824 consecutive deliveries from July 1, 1926 through June 30, 1942 there were 422 prolonged labors, an incidence of 2.7 per cent (table 1). As might be anticipated, primigravidas were in the majority (66.9 per cent), although the usual ratio in this clinic favors multiparas three to one. By comparison, the incidence of operative delivery and postpartum fever was high, 29.3 and 25.5 per cent, respectively. There were 3 mothers (0.7 per cent) and 44 infants [3] (10.4 per cent) who did not survive. The infantile fatalities were largely due to intracranial hemorrhage incident to the operative delivery, infection and prematurity (table 2). The 3 adult deaths were attributed to puerperal infection rather than to hemorrhage. Two patients died from peritonitis and 1 from embolism on the thirty-first postpartum day. (See the addendums of maternal deaths.)

Premature rupture of the membranes, implicated as a cause of prolonged labor,[4] occurred in 30 per cent of these patients (table 3). In the majority of cases, artificial rupture was performed as an adjunct to induction of labor. Moreover, the relatively low incidence of prolonged labor (2.7 per cent) compares favorably with the 9.0 per cent reported elsewhere [1a] and suggests, at least, that premature artificial rupture of the membranes does not cause protracted labor.

It is generally accepted that the principal causes of prolonged labor are cephalopelvic disproportion which is unrecognized until dystocia becomes apparent, abnormal fetal presentations and uterine inertia. In this series (table 3) there were only 26 pelves (6.2 per cent) that were classified as abnormal and 31 patients (7.3 per cent) in whom the fetal presentation was other than occipital. In addition, the distribution of infants' weights, as compared with "normal" labor, was within the usual limits. It is then obvious that these first two etiologic factors account at most for only 1 of 7 prolonged labors. Most of the remainder must be included in the last, or inertia, group.

Uterine inertia is at best a poorly understood abnormality of the uterine muscular function in which both myometrial contraction and retraction are at fault. The modern concept of uterine physiology during labor associates cervical effacement and dilatation largely with retraction of the lower, passive, segment and expulsion with contraction of the upper, or corporeal, portion of the uterus; [5] but it is probable that synchronization of the two types of muscular activity is essential for the normal birth process. Prolongation of labor is usually due to lengthening of the first stage and, therefore, presumably to lack of proper retraction of the lower segment.

The tocographic observations of Murphy [6] (charts 1, 2 and 3) indicate that first stage uterine inertia is associated with detectable alterations in the size and rhythmicity of the contractions of the corpus, which vary in intensity and tend to be irregular. This suggests either an abnormality of innervation or a failure of proper muscular response. Physiologically, a nerve

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1. (a) Douglas, R. G., and Stander, H. J.: Am. J. Obst. & Gynec. **46**: 1-19 (July) 1943. (b) Potter, E. L.: Postmortem Examination of Stillborn and of Newly Born Infants, Arch. Path. **25**: 607-636 (May) 1938. (c) Odell, L. D., and Plass, E. D.: Am. J. Obst. & Gynec. **52**: 89-99 (July) 1946.

2. Pride, W. T.; Reinberger, J. R., and Holland, D. T.: Am. J. Obst. & Gynec. **35**: 793-801 (May) 1935; **41**: 412-416 (March) 1941. Hillis, D. S., in Proceedings of Second American Congress on Obstetrics and Gynecology, Portland, Ore., Western Journal of Surgery Publishing Co., 1943. Odell.[1c]

3. Twenty-nine stillbirths and 15 neonatal deaths.

4. Grieg, D. S.: J. Obst. & Gynaec. Brit. Emp. **50**: 337-346 (Oct.) 1943.

5. Danforth, D. N.; Graham, R. J., and Ivy, A. C.: Surg., Gynec. & Obst. **74**: 188-203 (Jan.) 1942.

6. Murphy, D. P.: Surg., Gynec. & Obst. **78**: 207-212 (Feb.) 1944.

impulse sufficient to cause a contraction in either smooth or striated muscle produces an all-out response (the "all or none" law). The innervation of the uterus is derived from the antagonistic sympathetic and parasympathetic systems, with the former causing contraction and vasoconstriction and the latter, relaxation and vasodilatation, and from the cerebrospinal system. Moreover, the uterine muscle is arranged in many fasciculi, each with its supplying nerves and presumably with its nervous threshold. Inertia, then, may well represent a condition in which the uterus does not contract harmoniously, so that contraction (isometric action) does not proceed simultaneously with retraction (isotonic action).

Obstetricians have long recognized the effect of extraneous factors on uterine activity and have believed that the emotions (fear, grief and the like) have a definite effect on the contractions of the organ. Until more is known of the psychosomatic relationship, the etiology of uterine inertia may well be incomplete.

Contraction and retraction evidently combine to produce placental separation and expulsion from the uterus, with contraction seemingly carrying the major burden. Recently, doubt has been directed toward the older observation that administration of oxytocics promotes a much earlier separation of the placenta.[7] Subsequent to birth of the presenting part a solution of either posterior pituitary injection, ergonovine maleate or isotonic sodium chloride solution was administered intravenously and delivery was completed by physiologic uterine expulsion. Although excessive loss of blood was more frequent in those receiving isotonic sodium chloride solution, separation occurred within three minutes in a relatively equal percentage of each group[8] (table 4).

There can be little doubt that retraction, especially of the innermost muscular layers just beneath the decidua, is important in controlling postpartum blood loss. The separation of the placenta from the uterine wall entails the tearing across of many vessels whose ends are left open. In the normal case, there is little hemorrhage because further retraction of the uterus causes a muscular closure of the large sinuses of the uterine wall. Contraction of the remainder of the muscle undoubtedly helps by producing periodic uterine ischemia. It is a common observation in patients with unusual loss of blood that recurrent contractions expel blood which has accumulated in the uterine cavity during periods of relaxation, whereas under normal conditions of proper retraction such bleeding is barely noticeable.

This isotonicity of uterine muscle aids in the formation of thrombi. Although it is often difficult to outline

TABLE 1.—*General Data on Prolonged Labor*

	No.	%
Total deliveries	15,824	
Prolonged labors	422	2.7
Primiparity	283	66.9
Operative delivery	124	29.3
Febrile puerperium *	108	25.5
Maternal deaths	3	0.7
Infant deaths	44	10.4

* American Committee on Maternal Welfare Standard.

TABLE 2.—*Prolonged Labor*

	No.
Causes of death in thirty-one infants (autopsy findings)	
Birth trauma	12
Infection (intrapartum fever)	11
Congenital abnormalities	3
Prematurity	4
Erythroblastosis fetalis	1
Total	31
Causes of death in thirteen additional infants (clinical diagnosis)	
Diarrhea	1
Suspected birth trauma	6
Unclassified	6
Total	13
Grand total	44

TABLE 3.—*Prolonged Labor According to Pelvis, Fetal Position and Time of Rupture of Membranes*

	Patients	
	No.	%
Pelvis		
Normal	396	94.0
Funnel	10	2.3
Simple flat	9	2.1
Generally contracted	5	1.2
Other	2	0.4
	422	
Position and presentation		
Occiput, anterior and transverse	316	75.1
Occiput, posterior	75	17.7
Breech	24	5.7
Face	2	0.4
Transverse and compound	5	1.2
	422	
Time of rupture of membranes		
Premature *	127	30.0
Early †	89	21.1
Late	196	46.5
Unknown	10	2.3
	422	

* Before onset of labor.
† After onset of labor but before cervix is dilated 5 cm.

TABLE 4.—*Effect of Oxytocics, Isotonic Sodium Chloride Solution and Slow Expulsion on Duration of Third Stage (Courtesy of Dieckmann)*

Agent Injected	Duration of Third Stage in Percentage			Total Percentage Under 3 Min.
	1 Min.	2 Min.	3 Min.	
Ergonovine maleate 1 cc.				
Anterior shoulder	46	23	23	92
After second stage	6	42	30	78
Posterior pituitary injection, 0.2 cc.				
Anterior shoulder	29	38	16	83
After second stage	13	41	28	82
Isotonic sodium chloride solution, 1 cc.				
Anterior shoulder	7	36	18	61
Posterior pituitary injection, 0.1 cc.				
Slow expulsion	53	24	12	89

TABLE 5.—*Postpartum Hemorrhage According to Duration of Labor*

	Total	Patients with Hemorrhage		
		No.	%	
Normal labor (3 to 30 hours)	13,583	560	4.3	
Precipitate (under 3 hours)	1,819	97	5.3	
Prolonged (over 30 hours)				
Operative	123	13	10.5	7.6
Spontaneous	299	19	6.4	
Total	15,824	709	4.5	

7. Davis, M. E., and Boynton, M. W.: Am. J. Obst. & Gynec. 43: 775-787 (May) 1942.
8. Dieckmann, W. J.: Personal communication to the authors.

the placental site in the immediate puerperium (digital examination), subsequent palpation (eight hours after delivery) will disclose a raised, firm plaque. Moreover, histologic examination of this area shows thrombi within venous sinuses as well as sclerotic thickening, obliteration and thromboses of the spiral artery tips.[9] In the final analysis, the control of bleeding rests in the formation, maintenance and organization of these clots, and any disturbance in this mechanism can precipitate an abnormal loss of blood.

It is extremely difficult to evaluate the importance of idiopathic uterine atony in the postpartum loss of blood among patients with prolonged labor. Our figures (table 5) indicate that postpartum hemorrhage occurred in 7.6 per cent of this group as against 4.3 per cent in those women with labors of "normal" duration, but this difference is more apparent than real. Various other factors, such as the duration and depth of anesthesia and the agent employed, the type and difficulty of operative delivery and the competence of the attendant in managing the third stage and early

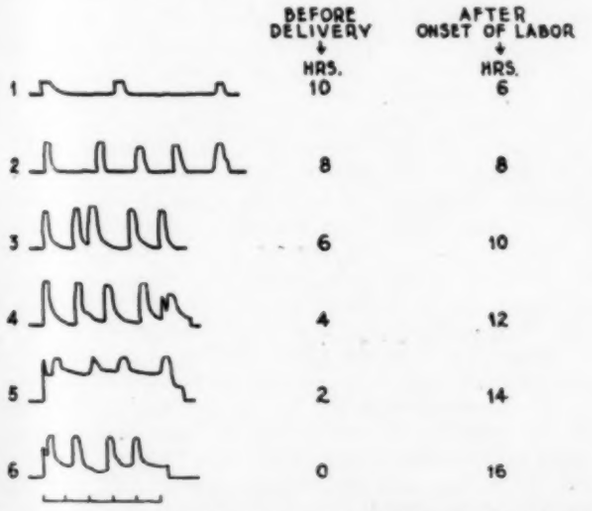

Chart 1.—Record of normal uterine contractions occurring in a labor of sixteen hours' duration; time interval, three minutes. Adapted from Murphy.

postpartum period, are especially significant. The effect of the first two of these is indicated by the fact that among the 123 operative deliveries there were 13 postpartum hemorrhages (10.5 per cent), while the incidence fell to 6.4 per cent in those delivered spontaneously. Thus, even after largely discounting the trauma of operation and the effect of more prolonged and deeper anesthesia, postpartum hemorrhage was 50 per cent more common among women who had prolonged labors but were spared these traumas than among those with labors of normal duration.

The effect of the third factor influencing loss of blood, the method of handling the placental stage of labor, is related to the experience of the operator. In our series the majority of uncomplicated labors were conducted by senior medical students and interns, who generally can be expected to encounter a higher incidence of postpartum hemorrhage than the resident and staff physicians who usually handle complicated cases. On this basis the hemorrhage incidence of 4.3 per cent after labors of normal length is higher than it should have been.

9. Koff, A. K.: Personal communication to the authors.

Such an analysis suggests that postpartum uterine atony leading to excessive loss of blood is perhaps twice as common in women who have exhibited inertia leading to the prolongation of parturition as in those whose uterine function is not thus disturbed. The surprising fact is not that the inertia should occasionally carry over to the postpartum period but rather that so many uteri which show defective first and second stage muscular activity should be able to exhibit proper contraction and retraction after expulsion of the fetus.

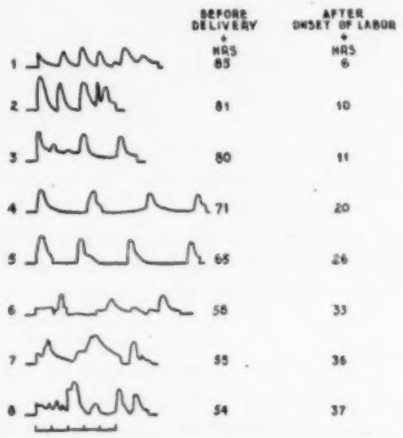

Chart 2.—Record of normal uterine contractions observed during labor of ninety-one hours' duration; time interval, three minutes. Delay in delivery was due to disproportion. Adapted from Murphy.

It has also been suggested that unusually rapid labors (under three hours' duration) may likewise be associated with postpartum hemorrhage because of incomplete retraction of the uterine muscle.[10] In such cases it is obvious that lower segment retraction, as demonstrated by the rapidity of cervical effacement and dilation, has kept pace with the strong upper segment contractions and that atonic postpartum bleeding must be attributed to failure of the subendometrial muscular layers to retract promptly. This variable response of two areas of the same organ is not inconceivable nor is the other possibility that muscular retraction involves a time element and that in precipitate labors a definite latent period imposes the risk of abnormal loss of blood. Our data (table 5) show a slight and probably insignificant increase in the incidence of postpartum hemorrhage in precipitate labors (5.3 per cent as against 4.3 per cent in "normal" labors).

As has been said, the cause of uterine atony is unknown despite many efforts to explain it. The vagaries of its occurrence, and especially the fact that ineffective or abnormally effective first and second stage contraction and retraction are generally followed by normal third stage and early postpartum activity, argue against disturbances of the hormonal or acid-base balance as etiologic factors. Such alterations could not logically explain the rapid change from

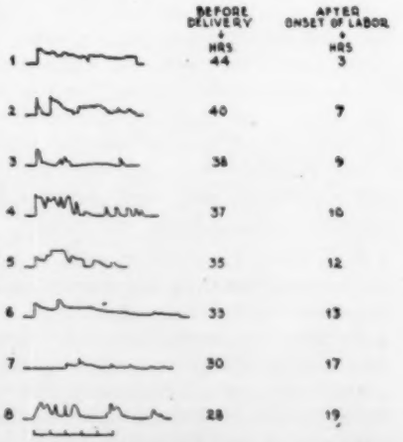

Chart 3.—Record of abnormal uterine contractions (inertia) throughout a labor of forty-seven hours' duration; time interval, three minutes. There was no evidence of disproportion. Adapted from Murphy.

10. McCormick, C. O.: A Textbook on Pathology of Labor, the Puerperium and the Newborn, St. Louis, C. V. Mosby Company, 1944. Beck, A. C.: Obstetrical Practice, Baltimore, Williams & Wilkins Company, 1942.

abnormal to normal function seen so frequently after expulsion of the child.

Proper conduct of the third stage of labor, permitting the uterus to contract and retract normally, is probably the best prophylaxis against atonic hemorrhage, in spite of the fact that loss of blood can be reduced on the average by the early exhibition of oxytocic drugs. In the presence of atonic bleeding, massage and oxytocics generally produce adequate retraction. Intrauterine douches, preferably with cold, sterile water, and thorough tamponade of the uterine cavity will occasionally be demanded. Prompt restoration of the circulating blood volume, initially with isotonic solution of sodium chloride or dextrose solution or with plasma, and later with whole blood, is most effective in preventing or combating shock with its threat of death.

SUMMARY

In this series uterine inertia was the principal cause of prolonged labor, cephalopelvic disproportion and abnormal fetal presentation, accounting for only 13.5 per cent of the cases. Uterine contraction and retraction are vitally concerned with the length of labor, with spontaneous placental separation and with the physiologic control of bleeding from the puerperal uterus.

Postpartum hemorrhage was more frequent following prolonged labor. This increased tendency toward abnormal loss of blood was due largely to prolonged anesthesia and the trauma of operative delivery but after nonoperative deliveries was on the basis of postpartum uterine atony. Astute anticipation of this tendency to bleeding, with careful conduct of the third stage, early uterine massage and exhibition of oxytocic drugs, as well as the liberal and early use of fluids and whole blood when abnormal loss of blood occurs, is recommended for the prevention and control of hemorrhage and shock.

ADDENDUM OF MATERNAL DEATHS

Case 1.—A woman aged 23, nullipara unigravida, was admitted several hours after a delivery which had been completed outside the clinic. After a seventy hour labor the patient had been delivered by a high forceps operation and transported 140 miles to the hospital. The symphysis pubis was separated, the bladder and urethra torn and pelvic tissues severely damaged. There had been no hemorrhage. Subsequent to admission her condition became progressively worse, and death occurred two days later. Autopsy was refused.

Case 2.—N. C., a woman aged 23 years, nullipara unigravida, was admitted with a six months gestation for treatment of gonorrhea. Labor commenced spontaneously near term. After a seventy-seven hour labor a 2,700 Gm. male, living infant was delivered by low forceps. The blood loss was 300 cc. The puerperium was uncomplicated until the seventh day, when signs of a puerperal thrombophlebitis developed. Death occurred suddenly on the thirty-first postpartum day. Autopsy confirmed a diagnosis of death from pulmonary embolus.

Case 3.—R. S., a woman aged 21, bipara multigravida, was admitted at term. After artificial rupture of the membranes, medical induction of labor and twenty-four hours of labor a transverse presentation was recognized. Attempts at correction failed. After fifty hours of labor a Porro's cesarean section was performed. The loss of blood was minimal. However, a dehiscence of the abdominal wound occurred on the fifth postoperative day. During the secondary closure a generalized peritonitis was recognized. Death occurred on the tenth postoperative day. Autopsy was refused.

ABSTRACT OF DISCUSSION

Dr. Donald A. Dallas, San Francisco: Dr. Odell has shown clearly that postpartum hemorrhage in prolonged labor is more common than it is in normal. He has stated that postpartum hemorrhage in itself can cause maternal mortality and that it frequently contributes to the mortality caused by other conditions, such as puerperal infection. He attributes postpartum hemorrhage in prolonged labors to three main causes: prolonged deep anesthesia, trauma of operative delivery and uterine atony. In my opinion the uterine atony is far more important than the other two causes. There are available numerous methods of treatment to prevent postpartum hemorrhage. Far more important than these methods is the consciousness on the part of the attendant that the consequences of blood loss during and shortly after labor are serious, and it is true particularly in those patients who have undergone a prolonged labor. The third stage of labor has always been neglected both in medical schools and in textbooks. This lack of consciousness of the seriousness of loss of blood was beautifully illustrated on Monday morning here in San Francisco, when I took Dr. Odell to one of our teaching hospitals to show him the beautiful facilities available for teaching clinical obstetrics. We walked into a space behind the glass partition and looked into a beautifully equipped delivery room. On a complicated and elaborate table lay a recently delivered patient. A basin containing a placenta and about 500 or 600 cc. of blood stood on a table nearby. There were three interns in the delivery room. Two of them were holding an animated conversation and the third was occupied in instilling silver nitrate into the eyes of the newborn baby. While we stood there, watching, the patient on the table began to bleed profusely. None of the medical attendants noticed this hemorrhage, and it was only by violently rapping on the glass partition that we were able to call these doctors' attention to the fact that the patient was really bleeding profusely. All that was necessary to stop this hemorrhage was simple gentle massage of the uterus. One of the interns walked over and massaged the uterus gently, the uterus contracted and the bleeding ceased. I think it might not be too fantastic an idea to have medical schools install in their delivery rooms some kind of a device which would repeatedly call the attention of interns and medical students to the fact that blood must be conserved during the third stage of labor.

Dr. Pendleton Tompkins, San Francisco: Dr. Randall and Dr. Odell stated that the incidence of prolonged labor in their very large series was 2.7 per cent. The etiologic factors were an abnormal pelvis in 6 per cent, a faulty presentation in 6 per cent and uterine inertia in 87 per cent. They have well discussed the treatment, but little has been said about prevention. There is nothing which can be done to prevent a patient coming in with an abnormal pelvis. There is nothing the physician can do about faulty presentation except occasionally in breeches. But about inertia, there is a good deal that may be done. Careful estimation of uterine tone at the time of the onset of labor is often neglected. There are patients who have poor labors and patients who have good labors. The uterus is a muscle and its tone is proportional, roughly, to the tone of all the other muscles. It is therefore incumbent on the obstetrician in his prenatal care to try to develop in his patient good muscular tone throughout—in her intestinal tract, her skeletal muscles and her uterus. He may do this by making certain that the patient obtains a reasonable amount of exercise during pregnancy. The large clinic will have difficulty in evaluating the needs of each patient, because the patients are seen by different physicians at each visit. The private practitioner, on the other hand, knows his patient well. He sees her himself six or eight or ten times during the course of her pregnancy, and he is in a better position than even the well staffed clinic to advise his patient regarding exercise and rest. He is also in a position to initiate labor at the optimum time. He will not induce labor too soon, if he induces

it at all, and when the patient comes into the hospital he can evaluate the fatigue which his patient has already experienced during the preceding hours. Psychosomatic influences play a large part in the course of labor. By alleviating fear the private practitioner can do more to avoid inertia of the uterus than by any other means. He must counteract also the effect that fearmongers have on patients, mothers who tell their daughters of their own difficult labors, neighbors who tell of their troubles. He must encourage his patients, to assure them that progress is normal, that he fears no difficulty. Many of Dr. Randall's and Dr. Odell's patients are admitted to the hospital some days before pregnancy reaches term. They wait in the hospital. They become weary and overanxious, and their labors are poor partly for that reason.

DR. J. L. BUBIS, Cleveland: This question of postpartum hemorrhage is very important. Every institution has its own method of taking care of these cases. In the university, where there is a student body, they naturally are more conservative than in the private institutions. When students are watching patients in labor over thirty hours, it is important to give the expectant mother plenty of fluids and sedation. If there is a moderate or borderline dystocia, it is important to wait until the cervix is dilated or dilatable. Those who have watched Potter deliver by dilating the perineum and the cervix followed by a version and extraction have seen that his patients have come through in much better shape than others because they have not had this fear of a prolonged labor and that they were in better physical condition because their labors had been shortened. One of the best procedures in the prevention of postpartum hemorrhage, after the fetus is delivered, is the injection of Pitocin directly into the vein or intramuscularly or into the solution as it is given to these patients. The uterus must be grasped and held firmly and watched for an hour after the delivery and repair. If that does not help, the uterine cavity is swabbed out with a sponge dipped in iodine solution and at the same time counter pressure is maintained on the fundus. Frequently pieces of placenta, membranes and blood clots are wiped out, the uterus contracts and the bleeding then stops.

DR. LESTER D. ODELL, Iowa City: In this series there were no maternal deaths which could be attributed to hemorrhage. In fact, the loss of blood was relatively insignificant in each fatality. This probably represents a unique occurrence, since most recent studies list hemorrhage as a leading cause of maternal death.

We agree with Dr. Dallas in that uterine atony is probably the principal cause of hemorrhage following prolonged labor. In this series there was a progressive coincrease in the incidence of operative delivery and blood loss up to 600 cc. But above that amount the rate of operative delivery declined, suggesting that uterine atony became a prime cause for bleeding.

Dr. Tompkins' remarks on the psychosomatic aspects of prolonged labor are pertinent. His outline of treatment at the University of Iowa was correct. However, we do take some pains to improve the general morale of our patients. But they are away from home and are on a charity status. Consequently, their mental attitude cannot be compared to that of private patients.

At the University Hospitals the management of patients with prolonged labor has been individualized. If compared with that in some other clinics it could be called conservative. Intravenous fluids, morphine, supportive nursing and antibiotics in the presence of real or threatened infection constitute what we consider to be intelligent therapy. Hypophamine drugs are not used to hasten labor or to treat uterine inertia. We do do not employ the word "dilatable" since it is not considered to be physiologic. Furthermore, cervical incisions, difficult forceps operations and cesarean hysterectomy are used only for strictly maternal indications. Consequently, the infant mortality rate of 10.4 per cent is probably high; high out of consideration for maternal life, morbidity and future health.

FOLIC ACID IN PERNICIOUS ANEMIA

Failure to Prevent Neurologic Relapse

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The ability of synthetic pteroylglutamic (folic) acid to induce hematologic remissions in patients with macrocytic anemia associated with megaloblastic hyperplasia of the bone marrow has been well established. A recent review by Berry and Spies [1] covers the subject adequately.

While the results of treatment with folic acid appeared to be similar to or identical with those of treatment with purified extracts of liver, it was recognized [2] that a considerable period of study would be necessary to ascertain whether folic acid would be as effective as extracts of liver in the maintenance of remission. In pernicious anemia it was also of importance to determine whether folic acid would cause arrest of neurologic lesions as effectively as do extracts of liver.

Recent reports [3] have indicated that in some patients with pernicious anemia there develops decided progression of neurologic lesions while they are being maintained on folic acid. The following case is presented in some detail because (1) the neurologic relapse was unusually "explosive" and rapidly progressive and (2) it occurred after the blood had reached and remained at normal levels, including the absence of macrocytosis.

REPORT OF A CASE

O. K., a white man aged 68, was admitted to the Lakeside Hospital complaining of weakness and indigestion. He had had angina pectoris for one year and had been hospitalized about a year before, at which time a diagnosis of coronary thrombosis was made. Since that time he had experienced progressive weakness, burning of the mouth and gums, slight numbness of the hands and inability to distinguish accurately the size of objects placed in his hands. He had also had nausea, indigestion and a bitter taste in his mouth, and frequently he had noted dizziness. There had been a loss of weight of 30 pounds (13.6 Kg.) in the last three months, and it was observed that the skin had assumed a yellow color.

Examination revealed little or no atrophy of the lingual papillae. The skin was a pale, lemon-yellow color. The liver was palpable about 3 cm. below the costal margin in the right midclavicular line. The knee and ankle jerks were absent bilaterally, but other deep reflexes were present, equal and normally active. There was a slight diminution in the vibratory sensation in the right leg below the knee, but it was normal elsewhere. The Romberg sign was absent, and position sense was intact.

Laboratory examination revealed the presence of a macrocytic anemia. The blood findings on admission were: erythrocytes, 1,590,000 per cubic millimeter; hemoglobin, 5.1 Gm. per hundred cubic centimeters; leukocytes, 4,850 per cubic millimeter; hematocrit reading, 17.5; mean corpuscular volume, 110 cubic microns; mean corpuscular hemoglobin, 32 micromicrograms, and mean corpuscular hemoglobin concentration, 28.2 per cent. The differential blood count revealed 43.0 per cent neutrophils, 1.5 per cent eosinophils, 0.5 per cent basophils, 0.5 per cent unsegmented neutrophils, 43.0 per cent lymphocytes and 11.5

This report is part of a study of folic acid aided by a grant from the United States Public Health Service.

From the departments of Medicine and Pharmacology, Western Reserve University School of Medicine, and the Lakeside Hospital.

1. Berry, L. J., and Spies, T. D.: The Present Status of Folic Acid, Blood **1**: 271 (July) 1946.
2. Folic Acid, editorial, Blood **1**: 357 (July) 1946.
3. (*a*) Vilter, C. F.; Vilter, R. W., and Spies, T. D.: The Occurrence of Combined System Disease in Persons with Pernicious Anemia During Treatment with the L. Casei Factor (Folic Acid), Proc. Central Soc. Clin. Research **19**: 26 (Nov.) 1946. (*b*) Meyer, L. M.: Folic Acid in the Treatment of Pernicious Anemia, Blood **2**: 50 (Jan.) 1947.

per cent monocytes. Many of the neutrophils contained highly segmented nuclei. The erythrocytes showed decided variation in size and shape and were macrocytic. Two normoblasts were seen while counting 200 leukocytes. The blood platelets were slightly reduced in number.

Gastric analysis showed absence of free hydrochloric acid after the subcutaneous administration of 1.0 mg. of histamine. The icterus index was 8 units. Serum bilirubin was less than 2.5 mg. per hundred cubic centimeters, and the van den Bergh reaction was positive direct.

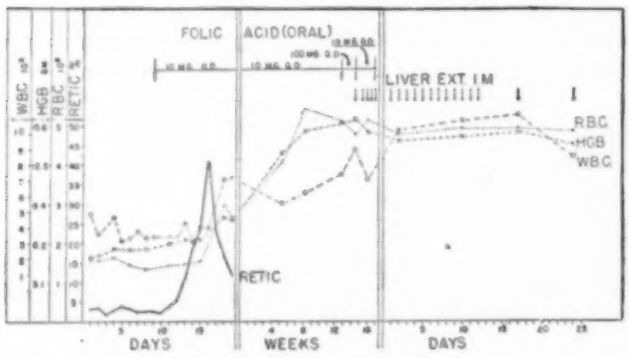
Sternal marrow aspiration was performed, and a well defined megaloblastic hyperplasia was found.

In view of these observations a diagnosis of addisonian pernicious anemia was made and treatment with synthetic folic acid [4] in daily oral doses of 10 mg. was started.

From the accompanying chart it can be seen that a reticulocyte response of 40.6 per cent occurred on the seventh day of treatment and was followed by a satisfactory increase in erythrocytes, hemoglobin and platelets (not charted). Sixty-one days after the start of therapy the erythrocyte count was 5,400,000 per cubic millimeter and the hemoglobin level was 15.1 Gm. per hundred cubic centimeters.

Coincident with the hematologic improvement there was an associated sense of well-being and a definite increase in appetite and general strength. The neurologic symptoms, which had never been pronounced, did not change.

At the time we first saw this patient he had only four teeth, the remainder having been extracted over a period of



Hematologic data on patient O. K.

one to two years. As a result of this, coupled with the naturally poor appetite commonly found in patients with untreated pernicious anemia, his diet had been limited. The intake of food was necessarily restricted to soft and liquid foods even after the remarkable increase in appetite associated with the response to folic acid.

Seventy-nine days after the initiation of treatment the patient had the four remaining teeth extracted. Because of the resultant sore mouth and the total absence of teeth the dietary intake was further restricted and consisted entirely of soups, milk and fruit juices for several days. It should be emphasized that the appetite was excellent at this time, and the patient had a desire to eat. Within three or four days after the removal of the remaining teeth there was a sudden pronounced increase in numbness of the hands. In two weeks this had progressed to a point where his arms were completely numb from the elbows downward. The patient was unable to feel objects placed in his hands, even those as large as a pencil. He was totally unable to manipulate buttons, tie his necktie or perform similar actions. At this time there was no numbness in the lower extremities. Examination of the blood revealed: erythrocytes, 5,090,000 per cubic millimeter; hemoglobin, 15.9 Gm. per hundred cubic centimeters; hematocrit reading, 48; mean corpuscular volume, 94.5 cubic microns; mean corpuscular hemoglobin, 31.3 micromicrograms, and mean corpuscular hemoglobin concentration, 33.2 per cent.

The dosage of folic acid was increased to 100 mg. a day, but in ten days the paresthesias of the upper extremities were unrelieved, and the patient noted progressively increasing numbness of the feet. At this time the intramuscular injection of a solution of extract of liver was started, 15 units of purified liver extract (Lilly) [5] and 6 units of crude liver extract (Lilly, 2 units per 1 cc.) being given twice a week. The folic acid dosage was reduced to 10 mg. a day.

Sixteen days after the initiation of treatment with extract of liver the neurologic condition had deteriorated further. The patient felt numb from the hips downward and from the elbows downward. All the deep reflexes were now completely absent. Vibratory sensation was absent below the ribs. There were no pathologic reflexes present, and the heel to knee and finger to nose tests were performed accurately. Throughout this time the appetite remained excellent, the body weight was maintained and general strength was good. Folic acid therapy was discontinued at this time, and treatment with vitamin B complex was instituted (Becotin, Lilly, three capsules a day).

Twenty days after the first dose of liver extract severe lower abdominal pain suddenly developed, and the patient was readmitted to the hospital. He had slight fever for two days (maximum 38 C., 100.4 F.), and became decidedly jaundiced. The icterus index reached a maximal value of 90 units, and the serum amylase attained a level of 72.3 units. A diagnosis of acute pancreatitis was made. Roentgenologic examination of the gallbladder, made on the previous admission, had revealed normal function, and calculi had not been visualized. Within ten days there was recovery from this episode, and the icterus index and serum amylase values returned promptly to normal. During this hospital admission the patient was given daily intramuscular injections of 6 units of crude liver extract (Lilly, 2 units per 1 cc.) and the treatment with vitamin B complex was continued.

Twenty-seven days after the first dose of extract of liver and while the patient was still in the hospital, the first signs of improvement occurred when he noted a slight decrease in the numbness of his hands and was able to tie a bow in a cord. It should be observed that this improvement occurred despite the presence of an infection, pancreatitis. The patient was discharged from the hospital thirty-one days after receiving the first dose of extract of liver, and injections have since been given on a twice weekly basis. Examination thirty-five and forty-two days after the start of liver therapy revealed progressive improvement, in that the patient could tie his shoelaces and necktie and button his shirt. There was also progressive but not complete disappearance of numbness in the upper and lower extremities.

COMMENT

The neurologic relapse in this case occurred in a patient on folic acid therapy who had attained and maintained completely normal blood findings. It occurred suddenly, progressed rapidly and responded to liver therapy slowly. The patients described by Vilter and his associates [3a] likewise displayed sudden onset and rapid progression in their neurologic relapse.

To date we have treated and maintained 47 patients with pernicious anemia with synthetic folic acid for periods up to one year. Of this number, only 2 others in addition to the patient described have exhibited definite neurologic relapse. These relapses were mild and responded readily to therapy with extract of liver. This group of patients will be reported in a later publication.

In all 3 patients in whom neurologic relapse occurred the dietary intake was poor. In the patient described here, absence of teeth prevented normal dietary intake, as was noted before. The other 2 patients were women. One, aged 50, was a person of unstable temperament in whom emotional disturbances caused frequent nausea and vomiting, and who never had a robust appetite. The other, a woman aged 72, never had a good appetite, frequently ate only two meals a day and probably did not consume a fully balanced diet.

4. Synthetic folic acid was supplied through the courtesy of the Lederle Laboratories, Inc.

5. Liver extracts of this type contain insignificant amounts of determinable folic acid.

The mechanism of the neurologic relapse occurring in this patient is not immediately obvious. The rather remote possibility exists that even larger doses of folic acid might have prevented or caused the disappearance of the symptoms. Neither we nor Vilter and his associates [3a] continued to give the larger doses of folic acid for more than forty days because rapid progression of symptoms during that time made standard effective treatment mandatory. Had such large doses been continued longer it is possible that folic acid alone might have controlled the neurologic relapse.

On the other hand, the "explosive" nature and rapid progression of the relapse occurring in this patient suggests that folic acid not only failed to prevent neurologic relapse in the dosage used but may even have precipitated it. If the hematologic and neurologic manifestations of pernicious anemia are due to deficiency of more than one substance, it is possible that alleviation of the hematologic deficiency with folic acid might precipitate the neurologic relapse as a manifestation of another deficiency not relieved by folic acid. Precipitation of signs of vitamin deficiency in persons deficient in more than one member of the vitamin B complex has been shown to occur when one of the needed vitamins is administered,[6] while the deficiency of the others continues.

If even larger doses of folic acid (100 to 500 mg. a day) fail to prevent or relieve such neurologic relapses it would appear that, although folic acid is capable of producing and maintaining a normal erythrocyte picture, a substance (or substances) other than folic acid is necessary for the maintenance of the integrity of the nervous system. Highly purified extracts of liver have been found to be entirely capable of performing both functions,[7] although the mechanisms of action are not understood. Whether the probably inadequate diets of the patients described contributed to the neurologic relapse by causing deficiency of some substance necessary to maintain the integrity of the nervous system is a matter of conjecture at this time. Such a circumstance is a possibility, however. Neurologic relapse has not been observed as yet in any of our patients who have had a good appetite and have been eating well.

It is becoming obvious, therefore, that folic acid not infrequently fails to control neurologic lesions when given in doses sufficient to maintain normal blood levels. Thus, the clinical use of folic acid as a complete substitute for extracts of liver in treating pernicious anemia is not justified. Although more study will be needed to determine whether massive doses of the vitamin can prevent or relieve neurologic relapses, previous experiences with other members of the vitamin B complex render this circumstance unlikely. It is fortunate that the manufacturers of synthetic folic acid have advised that a combination of folic acid and liver extract may prove more effective than either substance alone.

SUMMARY

Recent reports indicate that synthetic pteroylglutamic (folic) acid does not prevent neurologic relapse in some patients with pernicious anemia.

A case is reported in which "explosive" and rapidly progressive neurologic relapse occurred in the patient after a normal blood picture had been attained and had been maintained with folic acid. The dietary intake of this patient was limited by absence of all teeth.

The possibility is considered that folic acid not only fails to prevent but actually may precipitate neurologic relapse.

It is not justifiable to consider folic acid a complete substitute for extract of liver in the treatment of pernicious anemia in the light of our present knowledge.

6. (*a*) Goodman, L., and Gilman, A.: Pharmacologic Basis of Therapeutics, New York, The Macmillan Company, 1941, p. 1251. (*b*) Spies, T. D.; Vilter, R. W., and Ashe, W. F.: Pellagra, Beri-Beri and Riboflavin Deficiency in Human Beings, J. A. M. A. **113**: 931 (Sept. 2) 1939.

7. Strauss, M. B.; Solomon, P., and Fox, H. J.: Combined Degeneration of the Spinal Cord in Pernicious Anemia, New England J. Med. **222**: 373 (March 7) 1940.

RESECTION OF THE VAGUS NERVES IN PEPTIC ULCER

Physiologic Effects and Clinical Results, with a Report of Two Years' Experience

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Perusal of the rapidly growing literature on the application of resection of the vagus nerves to the treatment of peptic ulcer makes it clear that there exist four central questions to which early answers should be obtained in order that surgeons and physicians may tentatively evaluate this surgical operation.[1] The added reservation must be made that any treatment for peptic ulcer is not put to its final clinical test until fifteen to twenty-five years have passed; short of this ultimate ideal, everything possible should be done to arrive at an early estimate of the usefulness of this new procedure.

These four questions may be stated as follows:

1. Are patients with peptic ulcer clinically benefited by this operation and, if so, what are the indications, contraindications and clinical side effects?

2. What demonstrable physiologic changes are produced in the gastrointestinal tract by resection of the vagus nerves?

3. How long do these physiologic changes persist?

4. How long do the patients remain well clinically and roentgenologically?

At present it is possible to supply answers to the first three of these four questions and a tentative answer

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1. Dragstedt, L. R., and Owens, F. M., Jr.: Supradiaphragmatic Section of Vagus Nerves in Treatment of Duodenal Ulcer, Proc. Soc. Exper. Biol. & Med. **53**: 152-154, 1943. Dragstedt, L. R.; Palmer, W. L.; Schafer, P. W., and Hodges, P. C.: Supradiaphragmatic Section of Vagus Nerves in Treatment of Duodenal and Gastric Ulcers, Gastroenterology **3**: 450-462, 1944. Dragstedt, L. R., and Schafer, P. W.: Removal of Vagus Innervation of Stomach in Gastroduodenal Ulcer, Surgery **17**: 742-749, 1945. Dragstedt, L. R.: Vagotomy for Gastroduodenal Ulcer, Ann. Surg. **123**: 973-989, 1945. Moore, F. D.; Chapman, W. P.; Schulz, M. D., and Jones, C. M.: Transdiaphragmatic Resection of the Vagus Nerves for Peptic Ulcer, New England J. Med. **234**: 241-251, 1946. Grimson, K. S.; Taylor, H. M.; Trent, J. C.; Wilson, D. A., and Hill, H. C.: The Effect of Transthoracic Vagotomy upon the Functions of the Stomach and upon the Early Clinical Course of Patients with Peptic Ulcer, South. M. J. **39**: 460-472, 1946. Moore, F. D.: The Etiology of Peptic Ulcer in the Light of Vagus Surgery, Bull. New England M. Center **8**: 193, 1946. Ruffin, J. M.; Grimson, K. S., and Smith, R. C.: The Effect of Transthoracic Vagotomy upon the Clinical Course of Patients with Peptic Ulcer, Gastroenterology **7**: 599-606, 1946.

to the fourth. In this paper we shall attempt briefly to summarize the experience of our first two years with this procedure, especially as that experience casts some light on these four most significant problems.

The background and rationale of this surgical procedure, which stem from past physiologic research and clinical observation, have been briefly reviewed in a previous paper; the employment of this type of operative intervention in the treatment of patients with ulcer rests on these documentary evidences and also on the less well defined but equally important experience of clinical medicine, which tells us that patients with chronic peptic ulcer are apt to have exacerbations in response to certain types of environmental situations. This observation alone, wholly aside from any laboratory research, should lay a foundation for lasting interest in neurologic effects on the stomach.

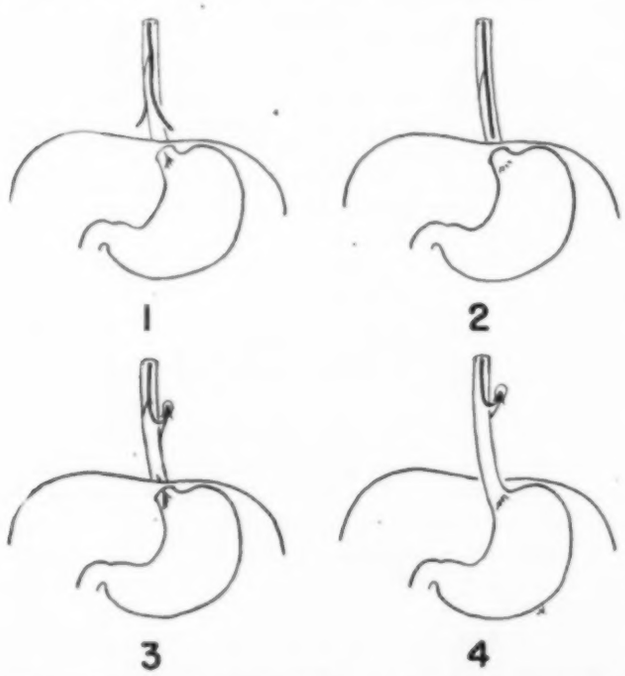

Fig. 1.—Diagrammatic representation of four surgical procedures for the division of both vagus nerves at one stage: (1) supradiaphragmatic vagotomy, both nerves sectioned and pleuralized; (2) subdiaphragmatic vagotomy, both nerves cut from the abdominal approach; (3) supradiaphragmatic vagus resection, both nerves cut, portions removed and proximal ends pleuralized and encased to prevent regeneration, and (4) transdiaphragmatic vagus resection, same as (3) save for the opening of the diaphragm and the removal of the nerves down to their decussation on the stomach.

SURGICAL CONSIDERATIONS

The surgical technic of vagus resection will not be dealt with in detail here. Problems in regard to the extent of the operation and surgical nomenclature may be germane, however, to our evaluation of late results. For that reason we have diagrammed in figure 1 four possible methods of sectioning the vagus nerve supply to the stomach. In all four of these surgical procedures both nerves are sectioned at one stage. The word "vagotomy" should be reserved for those operations in which the vagus nerves are sectioned but none is removed. "Vagus resection" is a term which should be used when a section of both nerves is removed.[2] Whether the surgical intervention is transthoracic or transabdominal should be specifically stated, as well as whether or not the diaphragm has been traversed (fig. 2). It is too soon to say whether the more extensive surgical operations that we have performed (3 and 4 in fig. 1) produce a more lasting result than a more conservative procedure (1 and 2 in fig. 1).

2. "Vagectomy" is a misnomer, since it implies total or subtotal removal of the nerves.

CLASSIFICATION OF CASES

The distribution of cases in which surgical intervention was performed during the first two years of our experience with this procedure is shown in figure 3. Forty patients have had resections of their vagus nerves performed by members of the staff of this hospital. All these operations have been done through the chest of the patient, and all of them have involved resections of segments of the nerves rather than vagotomy. They all fall into operative types 3 or 4 of figure 1. In about two thirds of these cases the patients have had the diaphragm opened.

The remaining 37 patients all had peptic ulcers. Ten were jejunal or stomal ulcers, 26 were duodenal ulcers and 1 was a gastric ulcer. The 10 cases of jejunal ulcer were equally divided between those which developed after gastroduodenostomy or gastrojejunostomy and those which occurred following subtotal gastrectomy. Two of the jejunal ulcers came on subsequent to gastrectomy, which must, according to present standards, be regarded as inadequate. In 1 patient a great deal of fundus and antrum had been left proximal to the anastomosis; in the other patient the defunctioned antrum was left in, after the fashion of a Finsterer exclusion operation.

Our hesitancy to operate on patients with gastric ulcer is understandable in view of the histologic uncertainties of ulceration proximal to the pylorus. Yet when 1 patient presented himself who had previously had a duodenal ulcer and now had a gastric ulcer near a stoma established by gastroenterostomy, the gastric ulcer being gastroscopically and roentgenologically benign, it seemed justifiable to carry out this procedure. The gradual healing of this patient's ulcer is being followed by gastroscopy, and it should be emphasized that unless complete healing and maintenance of healing occurs further surgical intervention will be performed. So far, his progress has been satisfactory.

RESULTS IN CASES OF ULCER

The clinical results to date in all these patients are shown in figure 4. Of the 33 cases observed long enough postoperatively to consider as follow-ups, 7 have been followed postoperatively from one to two years and 26 have been followed from three to twelve months. Of this group of 33 patients, 32 have shown healing of their ulcer. In evaluating these cases clinically one cannot use healing of the ulcer as the only criterion of success. We have, therefore, attempted to classify our results in cases of ulcer under three clinical headings.

1. *Poor Results.*—If the ulcer did not heal and something else needed to be done, either medically or surgically, the result was classified as "poor." This was the situation in the 1 case previously mentioned, in which a defunctioned retained gastric antrum was present after a subtotal resection. In the future, patients with ulcer following subtotal resection will be dealt with according to the adequacy of their resection, inclining toward reresection if the original surgical procedure has been inadequate and performing vagus resection if

the gastrectomy has been adequate according to present standards.[3]

2. *Unsatisfactory Results.*—If the ulcer healed but there were other side effects or late results which, from the point of view of the patient, rendered the resection of the vagus nerves of dubious value to him, the results were regarded as "unsatisfactory." There were 3 such patients, in all of whom the ulcers healed. One of these patients came in originally with some obstructive symptoms which disappeared on conservative therapy and postoperatively, over the course of nine months, stenosed his duodenum completely. With no demonstrable recrudescence of his ulcer this patient required a larger opening to his stomach than the stenosed duodenum. For this reason a posterior gastroenterostomy was performed. It is difficult to know in which group to classify this result until we have had more experience, but for the present it must be regarded as short of perfect. Two of the patients have continued to have abdominal pain. These are the 2 patients shown in figure 3 under the category of psychiatric. They were both patients whose abdominal symptoms were not transiently relieved by the use of alkali compounds. They both had a psychiatric background, and although their ulcers have now healed they still have abdominal symptoms, in 1 case made worse by the surgical operation.

3. *Satisfactory Results.*—Twenty-nine of the 32 patients with healed ulcers show results which are, from the clinical point of view, satisfactory. Twenty-three of the 29 patients have been asymptomatic. Five patients have had gastrointestinal symptoms which, though transient, have been a factor detracting from the early postoperative satisfaction of the patient. Three of these 5 patients had diarrhea which lasted from three to five months after the surgical intervention and amounting to three to five bowel movements a day. At times this diarrhea caused much inconvenience, but at no time has it produced nutritional difficulties or dehydration. In all cases it has ceased spontaneously.

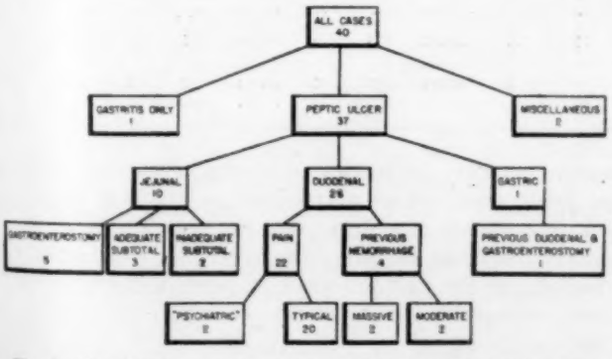

Fig. 3.—Classification of 40 cases treated by vagus resection over a two year period, Aug. 1, 1944 to June 15, 1946 at the Massachusetts General Hospital.

Two of the patients had symptoms after eating, either of fulness or of epigastric pressure and faintness. These postprandial symptoms have likewise decreased with the passage of time, and 4 of the 5 patients in this group regard their operation as having been successful. The fifth, while clear of disease roentgenologically, is now, two years postoperatively, again taking antacids and milk for "ulcer pain." The further course of this patient will be of the greatest importance in our ultimate conclusions.

The patients with jejunal ulcer have done well clinically. One patient (jejunal ulcer following posterior gastroenterostomy) has had postprandial symptoms similar to those following a subtotal resection; he has feelings of weakness and dizziness after eating and feels

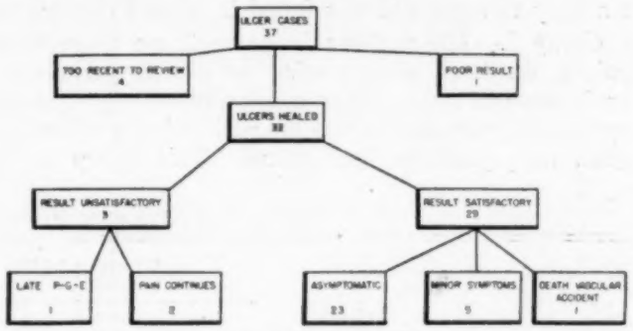

Fig. 4.—Results three to twenty-two months postoperatively in the 37 cases of peptic ulcer (fig. 3) treated by vagus resection. In lower left corner: P. G. E., posterior gastroenterostomy.

a desire to lie down. These sensations are decreasing; the jejunal ulcer is healed, and the patient's nutrition is adequate.

One patient died of a cerebrovascular accident nine months postoperatively, the vascular accident being the result of hypertension. The patient was not thought suitable for splanchnic resection, and the vagus resection was successful as far as healing of the patient's ulcer was concerned. This late fatality from a complication of hypertension, however, raises the possibility that vagal interruption renders hypertension more rapidly progressive. If there is an antagonistic balance between the splanchnic and the parasympathetic supply to the viscera, it is conceivable that removing the parasympathetic "brake" allows the sympathetic system to overact uncontrolledly.[4]

Our analysis of these results which were short of perfect may appear to place undue stress on a few patients. The great majority of patients (91 per cent) have been well pleased with the results and have thrown off the shackles of diet and repeated office or hospital medical care for the first time in many years. Yet at this early stage in our experience with a new procedure a detailed consideration of less perfect results may teach us more than many reiterations of the advantages to be gained.

INDICATIONS

From these data as well as from a complete study of the clinical histories, which cannot be included here for reasons of length, we can form several conclusions about the type of patients most benefited by this operation.

Group 1.—In group 1 are patients with previous gastric surgical intervention in which a new outlet to the stomach has been made and in whom renewed ulceration is present. In this group of patients side effects from resection of the vagus nerves have been the fewest, results have been satisfactory and the technical

3. McKittrick, L. S.; Moore, F. D., and Warren, R.: Complications and Mortality in Subtotal Gastrectomy for Duodenal Ulcer: Report on Two-Stage Procedure, Ann. Surg. **120:** 531-561, 1944.

4. Three cases have been brought to our attention which may illustrate the converse of this relationship. All 3 patients had had splanchnic resections for hypertension and subsequently bled massively and painlessly from duodenal ulcers. One patient succumbed to the hemorrhage. From these events one would conclude that resection of the splanchnic nerves should be approached with added caution in the presence of an active duodenal ulcer, and that vagus resection should similarly be undertaken with caution in the presence of hypertension.

contrast between vagus resection and renewed approach through the abdomen is most striking. Inadequate gastrectomy is much less favorable than gastroenterostomy as a background for resection of the vagus nerves, and this fact should be taken into consideration in selecting patients for operation. If vagus resection should ultimately fail, its failure will first become manifest in this group of patients because of the strong tendency to recur which is found in jejunal ulceration.

Group 2.—The patients in group 2 are those with painful duodenal ulcer coming on during periods of environmental stress, the pain being transiently relieved by antacid preparations and the patient being of intelligent, nonpsychiatric background. This group is in sharp contrast to the psychiatric group of patients with ulcer in whom surgical intervention should be avoided. This favorable group includes many patients who are wage earners, who are taking care of a family or who are busy in a useful position in society. Among the best results which have been obtained have been those in the group of private patients whose intelligence and insight into their problem has been most striking.

Group 3.—In group 3 are patients whose ulcer has not been notable for the symptoms produced, but which has produced hemorrhage or perforation in the past and which has been clearly demonstrable roentgenologically. The chief danger in carrying out resection of the vagus nerves on the "painless bleeder" is the hazard that one may operate on a patient who is bleeding from esophageal varices, a Meckel's diverticulum or other gastrointestinal pathologic structure. If the bleeding is from an ulcer vagus resection will, in our experience, heal the ulcer, and there is nothing irrational about carrying out the procedure. In the patient with painless bleeding the problem is not one of physiology but one of clinical diagnosis.

CONTRAINDICATIONS

It is possible to make a tentative statement as to the type of patient who is not improved by this operation.

Group 4.—This group includes patients with disturbed psychiatric background who are psychoneurotic or frankly psychotic, with multifarious symptoms, most of which are unrelieved by antacid preparations and only a small fraction of which are related to the ulcer. This type of patient will react poorly to surgical intervention. The difficulties of gastric emptying, instead of being accepted as a transient result, will be seized on as evidence of failure; one must avoid the error of concluding that because the patient is psychiatric the disorder in the stomach must be psychogenic and therefore susceptible to relief by resection of the vagus nerves.

It is important to emphasize here that vagus resection is not a cure-all for abdominal pains. No demonstrable sensory fibers reaching a conscious level are sectioned, and as far as the relief of pain is concerned the operation is of great specificity, relieving pain only when it is due to peptic ulcer.

Group 5.—Patients who are acutely bleeding are included in group 5.

Group 6.—Patients with frank cicatricial obstruction constitute group 6. A two stage procedure may be worked out for these patients which will be satisfactory. Dragstedt has described a one stage subdiaphragmatic

Resection of the Vagus Nerves: Secretory Data from Six Patients

Patient	Date	p_H Units			Titratable Acidity, Clinical Units					Pepsin, Units/Cc. × 10^5			Chloride, mEq/L.			Total Base, mEq/L.		
						Range		Average										
		No.	Range	Av.	No.	Free	Total	Free	Total	No.	Range	Av.	No.	Range	Av.	No.	Range	Av.
B. W.	7/19/44	6	1.3-7.9	2.8	6	0- 76	5- 78	36	37	6	13-445	303	6	76-129	101	2	54-162	108
	7/26/44	11	1.1-4.0	1.9	11	0- 95	25-110	46	73	11	251-387	308	11	51-148	110	3	49-118	84
	8/ 1/44	Operation																
	8/ 5/44	13	1.8-5.1	3.6	13	0- 26	14- 67	5	34	13	158-386	315	13	22- 91	52	13	21-144	78
	8/12/44	6	1.3-5.1	2.5	6	0- 54	0- 88	27	48	3	192-460	353	6	58-139	107	5	64- 93	80
	12/16/44	11	1.7-4.3	2.5	11	0- 46	32-128	22	63	11	185-441	334	11	58-124	95	9	31-112	69
	12/18/44	15	1.4-2.5	1.9	3	34- 46	40- 68	41	58	15	331-523	409	0	.....	..	14	69-125	80
	5/25/45	14	1.2-6.5	2.4	14	0- 62	7-120	23	50	14	49-470	338	14	63-127	81	13	54- 80	64
	6/ 1/46	10	2.2-8.8	5.9	10	0- 19	5- 38	3	17	..	.....	...	9	27-138	93	8	14-181	97
M. E.	7/25/44	14	1.2-8.4	2.6	14	0- 61	4-128	27	51	14	42-426	321	14	40-175	101	3	55-149	89
	8/ 3/44	Operation																
	8/19/44	14	2.4-7.5	4.0	10	0- 15	0-105	3	54	12	244-536	428	14	49-142	95	12	65-145	96
	4/19/45	8	2.0-3.1	2.6	8	7- 19	9- 72	13	42	8	113-321	212	8	18-119	57	8	7- 93	39
	8/ 6/45	4	3.0-4.8	4.0	4	0- 0	11- 23	0	15	4	57-135	93	4	52- 83	72	..	.....	...
G. B.	12/16/44	13	1.2-2.5	1.5	13	16-113	53-149	66	91	13	386-534	456	13	76-149	117	9	43- 98	69
	12/26/44	Operation																
	1/ 9/45	16	1.3-4.2	2.4	16	0- 55	25- 95	32	67	16	161-411	294	16	34-132	99	7	50-174	102
	5/28/46	5	1.3-5.0	2.2	5	0- 81	6- 89	38	46	..	.....	...	..	.....	...	..	.....	...
J. S.	2/21/45	7	1.3-3.1	1.7	7	21- 55	38- 72	41	59	7	247-427	304	7	108-134	122	7	58-110	76
	2/26/45	Operation																
	3/ 6/45	14	2.1-6.6	4.8	14	0- 19	0- 27	2	12	6	0-220	127	8	95-136	101	6	99-154	108
	8/ 3/45	..	.....	...	..	.....	.....	..	..	3	33-259	144	7	92-118	105	2	82-923	87
	8/ 3/45	13	1.3-6.8	4.4	13	0- 26	6- 95	8	40	5	43-321	147	13	64-129	107	5	64-115	91
	5/15/46	11	1.6-6.0	3.1	11	0- 39	14- 48	14	31	..	.....	...	..	.....	...	..	.....	...
C. P.	3/ 3/45	14	1.2-4.2	2.0	13	0- 53	8- 88	35	49	10	250-517	372	11	112-366	167	5	59-110	85
	3/ 6/45	Operation																
	3/14/45	11	3.0-6.9	5.8	9	0- 0	4- 41	0	16	7	33-398	138	9	34- 97	63	5	51-133	81
	5/10/46	4	5.8-6.3	6.1	4	0- 0	15- 24	0	19	..	.....	...	..	.....	...	..	.....	...
L. R.	5/25/45	15	1.1-5.8	1.9	15	0- 89	28-117	47	72	15	48-426	279	15	53-139	111	15	32- 99	68
	6/ 8/45	Operation																
	6/13/45	6	2.7-4.3	3.6	6	0- 16	7- 70	4	37	5	176-524	365	5	27- 64	42	6	0- 41	22
	5/25/46	4	1.8-2.0	1.9	4	33- 37	73-100	35	86	..	.....	...	..	.....	...	..	.....	...

vagotomy and posterior gastroenterostomy. There are two theoretic objections to this procedure. First, that in a patient with advanced obstruction, dilatation of the stomach may be produced by vagus resection which would be extremely difficult to control despite gastroenterostomy. Second, by a subdiaphragmatic vagotomy one cannot remove as much nerve as would seem desirable. Were a frankly obstructed patient to exhibit a clinical picture suggesting that his ulcer activity would react well to vagus resection, we would consider that it was rational to decompress his stomach first by means of a posterior gastroenterostomy and to follow this with an adequate transthoracic resection of the vagus nerves as a separate procedure. The passage of further time alone will tell us whether or not this combination has anything to recommend it over subtotal gastrectomy.

ORGANIC CHANGES

Examples of secretory and motility alterations produced by vagus resection have been shown in a previous publication. The follow-up secretory studies on 6 patients are shown in the accompanying table, in which the number of observations on a given date is shown, with the range of values and the averages.

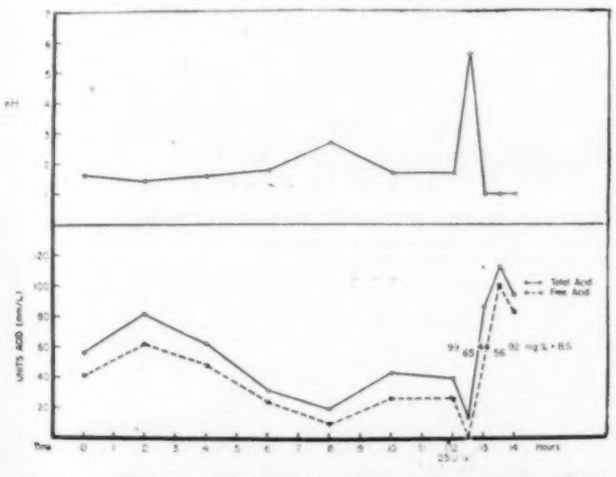

Fig. 5.—H. W.: Serial determinations of overnight secretion (starting at 8:00 p. m.) in a patient with a healed duodenal ulcer, posterior gastroenterostomy and active gastric ulcer.

Preoperatively the overnight secretion is only moderately acidic. There is a typical biphasic response to insulin (administration of 25 units intravenously shown by arrow) with initially an alkaline and at one hour a decidedly acid secretion.

Increases in the p_H value and lowering of free acidity are consistent and usually maintained to some extent, though not at the level obtained in the first postoperative observation. Pepsin[7] changes are inconstant;[8] the total chloride content, like acidity, may fall. The total base concentration may rise, but the changes are not wholly consistent.

Figures 5 to 9 demonstrate secretory alterations in response to insulin hypoglycemia.

The gastric response to insulin-induced hypoglycemia has been worked out by Weinstein and his associates[9] as a standard test and is going to be an extremely reliable and important observation to carry out on these patients. It should be done in the morning on a fasting stomach and, if the patient is postoperative, the stomach should be emptied before the test is begun. We have found that 20 to 25 units of insulin should be administered intravenously, in accordance with the weight of the patient, using the larger dose for men who weigh over 150 pounds (68 Kg.). Multiple samples of blood for sugar determination and multiple

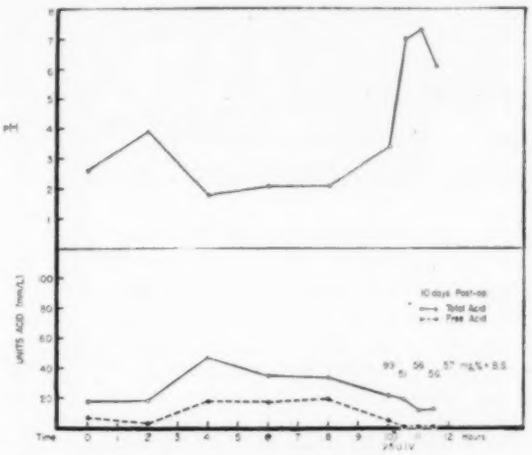

Fig. 6.—H. W.: Ten days postoperatively there is less acidity overnight, and the response to insulin is monophasic, producing only an alkaline secretion.

gastric samples can be taken, although the blood sugar and gastric sample one hour after the administration of insulin will usually yield the desired information when compared with the preinsulin level.

In our experience resection of the vagus nerves has uniformly abolished the acid response to insulin-induced hypoglycemia in the early postoperative phase.[9a]

The importance of these demonstrable organic changes in the stomach after following vagus resection

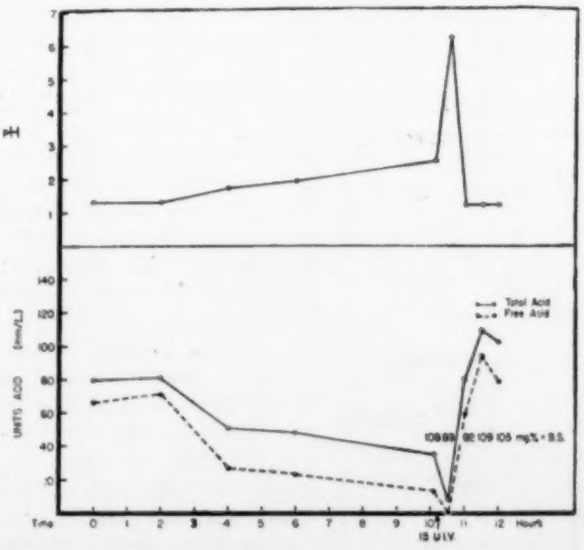

Fig. 7.—S. D.: Preoperative serial determinations of gastric acidity overnight (starting at 8:00 p. m.) and in response to insulin-induced hypoglycemia.

hinges largely not on their description or extent but rather on their duration. Approximately one year after our first patient was operated on, we began to obtain evidence that local physiologic changes in the resting unstimulated stomach tended to return to normal. Now

7. Anson, M. L., and Mirsky, A. E.: Estimation of Pepsin with Hemoglobin, J. Gen. Physiol. **16**: 59-63, 1932.

8. Pepsin assays have been done uniformly on 1 cc. of gastric juice which is undiluted. This avoids the possible errors traceable to dilution as pointed out by Bucher, G. R.; Grossman, M. I., and Ivy, A. C.: A Pepsin Method: The Role of Dilution in the Determination of Peptic Activity, Gastroenterology **5**: 501-511, 1945.

9. Weinstein, V. A.; Colp, R.; Hollander, F., and Jemerin, E. E.: Vagotomy in Therapy of Peptic Ulcer, Surg., Gynec. & Obst. **79**: 297-305, 1944.

9a. Recent experience has shown the insulin test to be a less reliable test than this would indicate. Serial tests have shown variations in the same patients.

we can state without reservation that gastric motility as recorded in the resting state by the kymograph may return to normal or nearly normal levels by the end of one year. Gastric atony seen at fluoroscopic examination is gone in three to nine months, although some

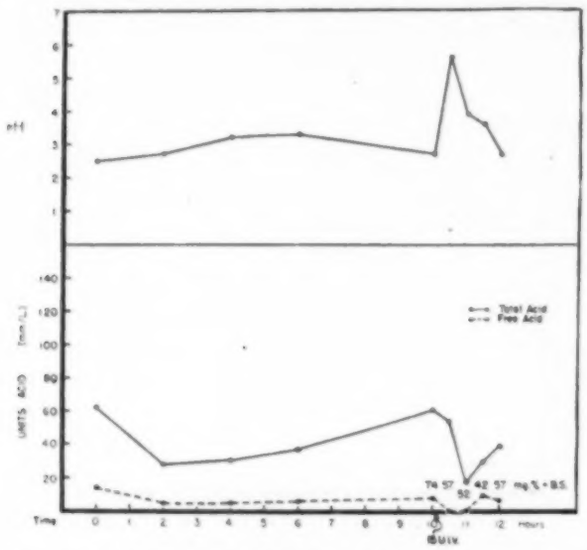

Fig. 8.—S. D.: As in H. W. (figs. 5 and 6), this patient with a long-standing duodenal ulcer shows diminution in resting acidity and abolition of an acid secretory response to insulin thirteen days postoperatively as compared with preoperatively (fig. 7). The preoperative hypoglycemia produces a biphasic gastric response as in H. W. Postoperatively only an alkaline response is produced.

delay in pyloric emptying may persist. Secretory changes, as tested by multiple quantitative determinations of the overnight gastric secretion, tend to return toward the normal range over a period of six to twelve months, although some reduction in acidity and an increased p_H value may persist. The response to insulin-induced hypoglycemia, however, has remained abolished in all our patients except one, who is worth discussing in some detail. He was the fourth patient on whom resection of the vagus nerves was performed at this hospital. He had an extremely intractable duodenal ulcer of eighteen years' duration, and his clinical result has been eminently satisfactory and has remained so despite secretory and motility findings which are in the normal range. When he was given a dose of insulin, which produced severe systemic symptoms and a blood sugar level of 33 mg. per hundred cubic centimeters, excessive sweating, excessive salivation, abdominal discomfort and massive gastric secretion were produced (fig. 9). The question arises as to how this severe hypoglycemia affects the stomach and whether this is a different phenomenon from the gastric stimulus produced by blood sugar levels in the vicinity of 50 to 70 mg. per hundred cubic centimeters. In all our preoperative insulin tests we have found a better correlation between the patient's symptoms and his gastric response than between his blood sugar levels and his gastric response, presumably because persons vary in their sensitivity to hypoglycemia. On this basis the systemic symptoms experienced by this patient were severer than any others we have produced and his gastric secretion showed a definite response despite the continued good clinical results following vagal interruption.

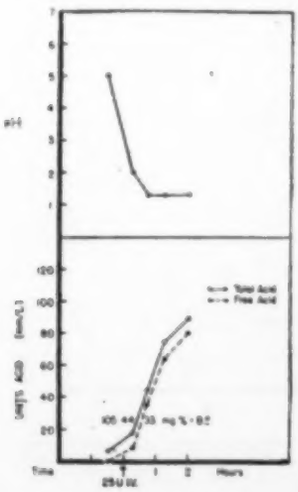

Fig. 9.—G. B.: Postoperative secretory response to insulin-induced hypoglycemia eighteen months after vagus resection for duodenal ulcer. A large dose of insulin produced excessive systemic symptoms and a blood sugar value of 33 mg. per hundred cubic centimeters. A decidedly acid secretory response is obtained despite continued evidence of vagal severance by the criteria of clinical well-being and resting acidity.

This patient brings out another point about vagal surgery which may transcend in importance all the laboratory data we have obtained. This patient is a tall, thin, lanky man, a worrier with a typical ulcer habitus. He states that prior to his operation any sort of difficulty at home or in his business caused him to have symptoms in his stomach. Since surgical intervention he has not observed that correlation, and even during the illness of his wife, an event which preoperatively would have produced an exacerbation of

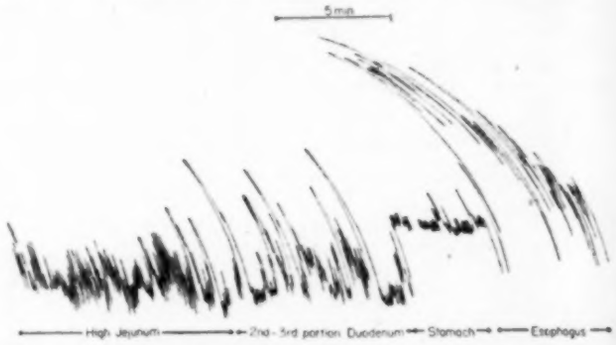

Fig. 14.—Preoperative balloon kymographs of motility in the upper gastrointestinal tract of patient A. H.

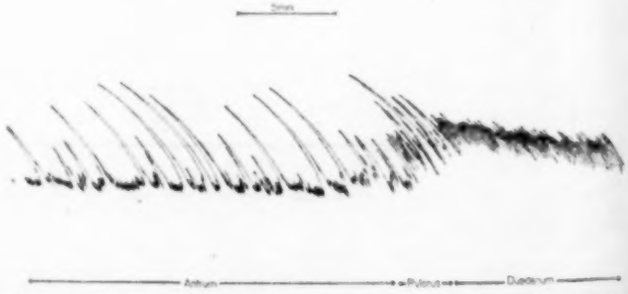

Fig. 15.—Same as figure 14. A clear depiction of the alteration in motility as the balloon passes through the pylorus is seen. This patient had a duodenal ulcer. There is no striking abnormality to be seen in these tracings.

his ulcer, he has had no difficulty whatsoever. This cortical-gastric disconnection has been maintained, and even at the time when he showed an acidity response to a blood sugar determination of 33 mg. per hundred cubic centimeters he still manifested an excellent symptomatic result.

Physiologic changes observed by kymograph after vagus resection are shown in figures 10 to 23. Kymographic tracings must be made with special care with reference to three features: accurate fluoroscopic control, prolonged observation and recognition of the stimulus produced by intragastric balloons of varying dimensions. The "quiet stomach" of a postoperative patient can often be stimulated into pronounced activity by a sudden increase in the size of the balloon. In addition to the types of observations shown in these figures we have studied the lower ileum (by ileostomy) and rectum. Motor changes beyond the pylorus are transient and ill defined.

It should be emphasized again that the threshold of pain to balloon distention in esophagus, stomach, duodenum and small bowel is unchanged by this operation. Nausea, vomiting, appetite, hunger, anorexia, fulness and crampy gastric pain may all be experienced by patients subsequent to resection of the vagus nerves.

COMMENT

The data presented herein might be summarized in the form of answers to the various questions which were posed at the outset.

1. *Are patients clinically benefited by this surgical procedure, and if so what are the indications and contraindications?*—In the patients operated on thus far the ulcers have healed with great uniformity. At the present time there can be no doubt that vagus resection offers a potent and effective means of dealing with peptic ulcer. The patient who most consistently and

Fig. 16.—Postoperative balloon kymographs of motility in the upper gastrointestinal tract of patient A. H., six months after vagus resection. As compared with figures 14 and 15, there are periods of prolonged quiescence in both duodenum and antrum. In both cases, with no apparent stimulus, considerable motor activity arises and then ceases spontaneously. It is apparent from such results that isolated short observations are of little value or significance.

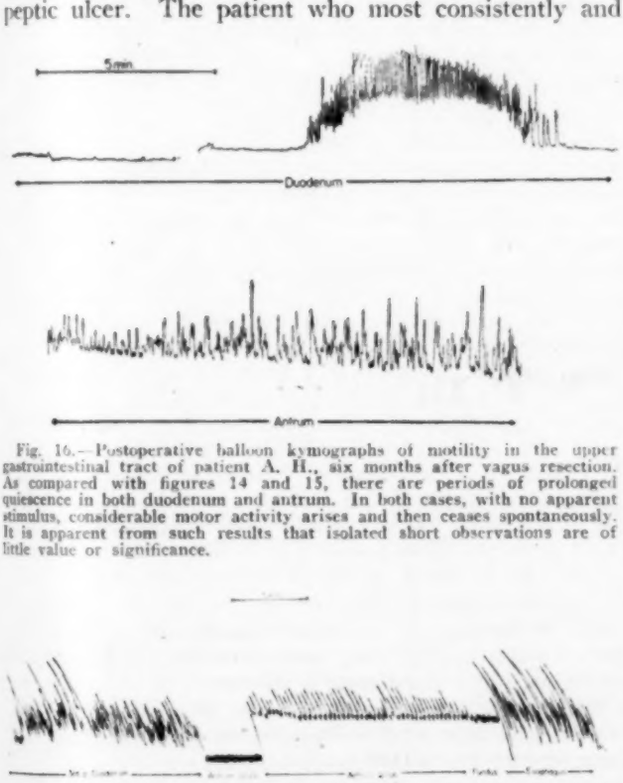

Fig. 18.—Preoperative balloon kymograph of motility in the upper gastrointestinal tract of patient W. M. There is no abnormality clearly demonstrable. This tracing shows a short period of quiescent antrum, followed by activity in response to an additional quantity of air in the balloon.

characteristically is benefited is that patient who most closely approximates the "typical ulcer case" and who, at the same time, does not have frank psychiatric or psychoneurotic symptomatology. This should not be interpreted as meaning that resection of the vagus nerves is contraindicated in all other types of patients. It is simply a statement of our experience in regard to the type of patient whose clinical result is most reliable. If the patient has had previous surgical intervention there is, in a sense, an added indication, though the basic problem remains the same. Clinical side effects are not negligible but rarely detract from the result.

2. *What demonstrable physiologic changes are produced in the gastrointestinal tract by vagus resection?*—A decrease in motility and acidity with no change in sensation is the typical postoperative picture in the resting unstimulated stomach of patients who have had resection of the vagus nerves. Nausea, vomiting and epigastric sensations of fulness may still be experienced, and there is no change in the sensory threshold to balloon distention of the esophagus, stomach, duodenum, jejunum and ileum. Changes in motility beyond the

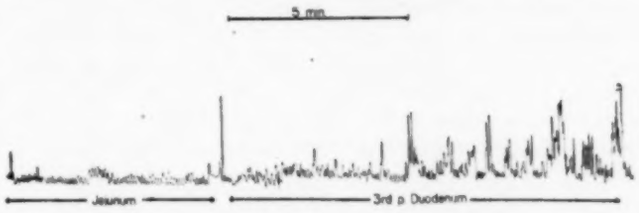

Fig. 20.—Postoperative balloon kymograph of motility in the upper gastrointestinal tract of patient W. M. four months after vagus resection.

pylorus are transient, ill defined and inconstant. Secretory and motility responses to stimuli mediated over the vagus nerves are the most important type of observation to be made postoperatively in these patients. At the present time the insulin test is the most reliable such stimulus. It is conceivable that dextrose or metrazol may give pancreatic responses mediated over the vagi which will be equally good tests for vagal division.[10] The final criteria in this field, however, rest partly in the psychiatric realm, as it is the patient's organic response to certain types of environmental stimuli which seem to determine his clinical result. At the moment we do not have a reliable way of producing these stimuli in patients, though such methods may be developed by future research.

3. *How long do these physiologic changes persist?*—In our experience demonstrable changes at the organic level in the resting unstimulated stomach have for the most part disappeared by the end of one year. Evidence that section of the vagus nerves still persists is to be found in the continued abolition of secretory response to hypoglycemia in most of the patients. The continued clinical results as well as the postmortem data from 1 patient also indicate that regeneration of the nerves has not taken place after use of the operative procedure as performed in this hospital. We may, therefore, conclude that the return to normal resting function is an evidence of gastric autonomy and that effective severence of the main neural pathways between brain and stomach still persist.

4. *How long do the patients remain well?*—We can only answer this question to the extent of our two

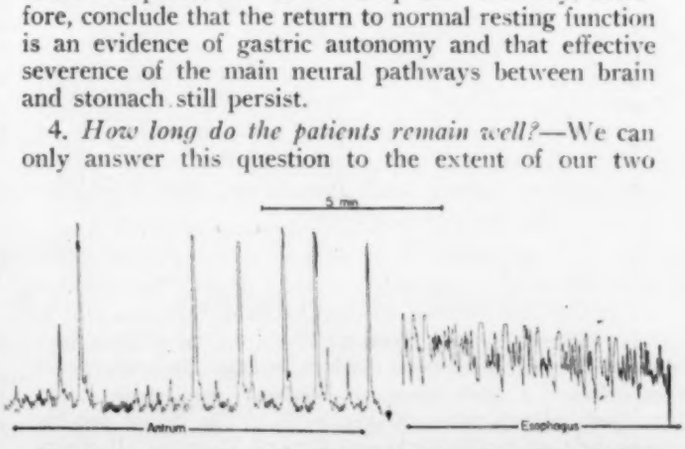

Fig. 21.—Same as figure 20. The esophagus and small bowel show activity similar to that seen in figures 18 and 19. The gastric antrum has regained its tone and produces high peristaltic waves.

years' experience. In that time our patients have remained well, and their clinical results appear to outlast the duration of those organic changes which we have studied in the resting stomach. One patient who two years postoperatively finds that it is necessary to

10. Gellhorn, E.: Autonomic Regulations, New York, Interscience Publishers, Inc., 1943.

take milk or antacid to relieve epigastric discomfort despite the absence of a demonstrable ulcer raises interesting questions about the ultimate fate of these patients, questions which can have no final answer at the present time.

To be effective and take a permanent place in the field of therapeutics a treatment of peptic ulcer must be lasting and devoid of undesirable side effects. This surgical procedure appears to be effective, and within the limits of our knowledge it is lasting. Its undesirable side effects, while present, do not occur in more than a minority of patients and are not a major consideration. To most patients its side effects are not in any degree comparable to their preoperative difficulties.

SUMMARY

The clinical and laboratory data in a group of patients operated on for peptic ulcer over a period of two years by resection of the vagus nerves are presented.

Clinical results are good; healing of the ulcer is the most uniform feature of the series; recurrences have not been encountered; transient undesirable side effects do occur and are found in about 10 per cent of the patients.

The early decrease in fasting acidity and motility, which is so readily demonstrable after this operation, gradually returns toward normal until, at the end of a year, little abnormality can be found by these criteria. The secretory response to insulin-induced hypoglycemia remains abolished in most cases, and the clinical well-being of the patients also appears to outlast the duration of the early secretory and motility changes.

This suggests strongly that although the immediate relief of pain and healing of the ulcer which are observed after vagus resection may be due to changes in fasting motility or secretion produced by that operation these resting changes are relatively transient, and any prolonged relief which this surgical procedure confers on the patient is due to some more subtle effect.

This more subtle effect is probably traceable to severance of those nervous pathways which communicate the patient's adaptive reactions from brain to stomach. In patients suffering from peptic ulcer impulses transmitted over these pathways in response to environmental situations often result in exacerbation of their disease. After resection of the vagus nerves such impulses cannot reach the stomach and exacerbations of ulcer have not occurred.

ABSTRACT OF DISCUSSION

DR. LELAND S. MCKITTRICK, Boston: I have never performed this operation, but I am here because of my interest in the problem of peptic ulcer and because of the privilege that has been mine in following the work of Dr. Moore and his co-workers at the Massachusetts General Hospital. If we as surgeons are realistic about our approach to peptic ulcer, we must admit that the best we have to offer leaves a great deal to be desired. It is completely unphysiologic to remove a large portion of a person's stomach for the treatment of an ulcer of the duodenum. It is also a destructive procedure. The results obtained are not too satisfactory. The mortality is low in experienced hands and the incidence of recurrent jejunal ulcer is not large; but there is a sizable group of patients (I don't know just how many, but I suspect it comprises from 10 to 15 per cent) in which the side products of the surgical operation are distressing and at times extremely disabling. I am referring now not only to the so-called "dumping" syndrome but particularly to that group of patients who fail to gain in weight and strength and therefore lack the ability to be completely rehabilitated. Nevertheless, the procedure of choice for the majority of intractable duodenal ulcers is an adequate subtotal resection. On the other hand groups like Dr. Moore and his co-workers, Dragstedt and others, should be encouraged to continue with their careful, painstaking studies of this problem even though vagus resection is far from the point where it can be accepted as the treatment in all cases. There are, however, several points that are justified. It is a more truly physiologic approach to this problem and it is safe in experienced hands. Not to be overlooked is the fact that if it fails, there is nothing which makes it impossible to do a subtotal resection or which even complicates the carrying out of that procedure. In the doing of our subtotal resections we must continue to perform a really adequate operation if we expect vagus resection to be successful in the treatment of the occasional jejunal ulcer we may encounter. It is of interest that in the patients of Dr. Moore where the antral mucosa has been left in or where an inadequate subtotal resection has been done the response to this surgical procedure is not satisfactory.

DR. WILLIAM DEW. ANDRUS, New York: There entered the surgical service of the New York Hospital a couple of months ago a man who by roentgen examination had an extensive carcinoma of the midportion of his esophagus, extending above the arch. In order to make some direct studies on gastric secretion a preliminary gastrostomy was performed. Through that gastrostomy, Dr. Stewart Wolf who, with Dr. Harold Wolff, has done extensive studies on gastric physiology, with particular reference to the effects of emotion, then conducted a long series of studies over a period of about two weeks, after the gastrostomy of the patient had healed. His chest was then explored and it was found that because of fixations to the aorta and other structures it was impossible to remove the tumor. At that operation, however, a resection of the vagus nerves was carried out, and after he had recovered from that procedure the previous studies were repeated. They confirmed practically entirely those that Dr Moore has commented on, with the exception of the effects on acidity; this patient had complete anacidity. However, the striking effect on which I wish to comment was that before surgical intervention, under direct vision, it was possible to observe that emotion, particularly resentment, would bring about a pronounced vascular response in his stomach, which could be measured on a color scale; following operation with resection of the vagi resentment and anger, though they caused flushing of the face and other evidences of emotional response, failed to produce any color changes in the mucous membrane of his stomach. Thus in a single case, carefully studied, direct evidence has been obtained of interruption of a well defined vascular response to emotion, after the resection of the vagus nerves. This procedure may be a more physiologic attack in that it may interrupt a basic etiologic factor in the production of ulcer.

DR. DEWEY TUTTLE, Houston, Texas: We have done a few of these operations in Houston. Chiassi, an Italian surgeon, showed in 1925 that even beneath the diaphragm enough of the vagus nerve could be resected to lessen the probability of recurring marginal ulcers, but Dr. Moore's sections and his diagrams show the implausibility of approaching the vagus nerve below the diaphragm. Dr. Moore has gone even further than Dr. Dragstedt and the group at Duke, and to make sure that he is getting the vagus nerve he has shown you the second type or the last two types of the more radical approach to the esophagus. In our work, we felt we had been getting the vagus nerve because of the response to the hyperinsulism, which has proved that we get the same curve as in Dr. Moore's tracing. We have had only 5 of these cases that we can follow to date, but every one of the patients has shown improvement; there have been no bad results and no mortality. Dr. Moore has pointed out that this work is in its infancy and

that his are preliminary studies. Resection of the vagus nerves has been performed on a large group, relatively speaking, and attention should be paid to the one note of warning that he does sound. This operation must be approached with precaution. Horsley pointed out that hypermotility, hypersecretion and hypertonus play no little part in the formation of ulcer. Every one of these patients is immediately improved in each of these categories. We are having a little trouble in our postoperative study, in convincing the medical practitioners in our part of the country that there is something here to offer for the relief of the peptic ulcer sufferer, that is, the decided dilatation of the stomach with delayed emptying time. It is peculiar that the total acid determinations in our group of patients have shown no essential change. The total acids usually play little part in causing distress in these persons. The University of Chicago group are showing impressive results in a new approach below the diaphragm and short circuiting by a gastrojejunostomy. Surely there is some phase of vagus resection that can be used.

DR. FRANCIS D. MOORE, Boston: In regard to Dr. McKittrick's mention of the "dumping" syndrome and failure to gain weight, I should mention that we had 1 patient in whom, after vagal resection, there developed a characteristic "dumping" syndrome, similar in every way to that following subtotal gastrectomy. However, these symptoms went away in approximately eight weeks, and he is now well and gaining weight. The chief interest attaching to this incident is the fact that the sensory arc of the "dumping" syndrome is evidently not carried over the vagi. Dr. Andrus has told of a most interesting patient in whom mucosal changes could be followed through a gastrostomy after resection of the vagus nerves. This is most fascinating to me, and I believe it represents the real frontier in the ulcer problem. I wish we had some way of studying our patients' gastric response to emotion before and after this operation because it is really the most important single aspect of vagal surgery. We are trying to get at it with the collaboration of our psychiatric service. Drs. Wolf and Wolff in New York, of course, have done a tremendous amount of work in that field and have a wonderful background to pursue it further. As far as subdiaphragmatic section of the vagus nerves is concerned, I have felt that it is inadvisable because one could not remove as much nerve or do as much to prevent regeneration as is possible through the chest. However, I must point out that we have had little experience with the subdiaphragmatic maneuver and that we must give it a more adequate trial before making any dogmatic statements.

Autobiography of Cardano.—It is indeed appropriate that the first full dress medical autobiography should be that of Girolamo Cardano, for in the pitiless self scrutiny of this Renaissance doctor are to be found many, if not all, the elements that characterize autobiography in general and medical autobiography in particular. Cardano was one of the strangest figures of the sixteenth century, in the first year of which he was born. Well known is Boerhaave's remark on Cardano that "no one was wiser when he was wise; nobody was more foolish when he erred." Hegel described him strikingly as "a world famous individual in whom the dissolution and ferment of his time are manifested in a most extreme form." Goethe likewise regarded him as a typical representative of Renaissance individualism and expressed the following judgment: "Cardanus everywhere regards science in relation to himself, his personality and his life history, with the result that his works are characterized by a naturalness and vitality which attracts and refreshes, and stimulates us to activity. He is not a doctor in a long robe who imparts instruction to us *ex cathedra* but rather a man who goes about, observes and is astonished by what he sees, experiences pain and joy, and passionately thrusts upon us an account of all this."—Caspari-Rosen Beate, and Rosen, George: Autobiography in Medicine. *J. History Med.*, April 1946.

THE TREATMENT OF ACUTE GOLD AND ARSENIC POISONING

Use of BAL (2,3-Dimercaptopropanol, British Anti-Lewisite)

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Philadelphia
JOEL GOLDMAN, M.D.
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Allentown, Pa.

The treatment of acute poisoning due to gold and arsenic compounds with BAL (2,3-dimercaptopropanol, British Anti-Lewisite), has given successful results.

Although gold has been acclaimed the best single therapeutic substance in the treatment of rheumatoid arthritis,[1] its use heretofore has been limited largely to a few rheumatologists and clinics having wide experience in chrysotherapy. This rather strict limitation of the use of gold is due to the occasional unpredictable and devastating symptoms of toxicity that appear when gold products are administered by inexperienced physicians. In our series of approximately 750 courses of gold injections,[2] the untoward reactions which were encountered, largely in our earlier use of gold, included generalized pruritus, seborrheic dermatitis, urticaria, purpura, secondary anemia, exfoliative dermatitis, stomatitis, thrombopenic purpura, agranulocytosis, jaundice, gastroenteritis and conjunctivitis. Among additional toxic manifestations reported by others are peripheral neuritis, dizziness, nausea, vomiting, nephritis and acute yellow atrophy of the liver. Toxic reactions are stated to occur in 20 to 56 per cent of cases, but with proper precaution this incidence may be materially reduced. The patient must be instructed to be on the alert for itching of the skin, rash and soreness of the mouth. The physician should limit the weekly dosage to 50 mg. and the total dosage of the course to about 765 mg. and should make periodic examinations of the blood. Gold should not be used in the treatment of patients with severe diabetes, nephritis, hepatitis, decided hypertension or hemorrhagic diathesis.

However, in spite of all possible precautions on the part of the patient and physician, occasional sensitivity to gold is encountered which may result in extremely severe toxic manifestations, probably the most distressing of which is exfoliative dermatitis. Search, therefore, has been made during the two decades since the introduction of gold therapy by Forestier [3] for an effective antidote to poisoning due to this metal. During the war research groups in England and the United States developed, under strict secrecy, an effective antidote against acute arsenical poisoning, notably that caused by lewisite. With the lifting of security restrictions and the publication of the extensive researches in this field by the two governments, BAL (2,3-dimercaptopropanol) became available for general use. Although during the war there was fortunately no opportunity for using this substance as an antidote to lewisite or related arsenic-containing substances designed for chemical warfare, valuable applications of it were made to the treatment of toxic reactions due to arsenic therapy of

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From the arthritis clinic of the Philadelphia General Hospital.

1. Cecil, R. L.; Kammerer, W. H., and de Prume, F. J.: Gold Salts in Treatment of Rheumatoid Arthritis, Ann. Int. Med. **16**: 811 (May) 1942.
2. Cohen, A.; Goldman, J., and Dubbs, A. W.: To be published.
3. Forestier, J.: Gold Therapy in Chronic Rheumatism, Bull. et mém. Soc. méd. d. hôp. de Paris **53**: 323 (March 11) 1929.

syphilis.[4] This drug was soon shown to be effective also as an antidote in acute poisoning due to mercury,[5] cadmium,[5a] zinc[6] and copper.[7] The logical extension of these studies is the employment of BAL as an antidote to acute poisoning caused by gold in the course of chrysotherapy. No previous publication on this use of BAL has come to our attention.

Now generally accepted is the hypothesis that heavy metals[8] such as arsenic and mercury exert toxic effects on biologic systems by reacting with sulfhydryl groups of the protein fraction of cellular enzymes to form mercaptides. Arsenic and gold are closely related chemically in regard to valencies and inorganic reactions. It may therefore be presumed that their biochemical reactions are similar and that BAL is able to reverse the toxic effects of gold, as it has been shown to do in the case of arsenic. It may be presumed that toxic reactions from gold are due to its combination with sulfhydryl groups in stable compounds in tissues, and that sulfhydryl groups in the dithiol BAL compete effectively with these dithiol protein-metal compounds in the tissues, thus eliminating the offending gold, relieving the biochemical lesion and restoring the normal enzyme systems by a mechanism parallel to that concerned in the BAL therapy of arsenic poisoning. Although the preliminary studies reported here are not confirmed by laboratory studies of gold toxicity in animals or by gold excretion studies, the clinical results indicate a close similarity between the effects of BAL in toxic reactions to gold and arsenic. Results of attempted laboratory confirmation of these presumptions will be published.

On account of our strict prophylactic regimen, no opportunity for a study of BAL has presented itself among cases in which gold therapy was initiated by us. However, in the few months that BAL has been available we have had 5 referred cases of acute gold toxicity and 1 of arsenic toxicity which we have treated with this new antidote. Results of therapy in all cases were most gratifying, in that there was prompt and complete reversal of all toxic manifestations. Almost dramatic was the disappearance of cutaneous lesions, including severe exfoliative dermatitis.

Unfortunately, BAL is not an entirely ideal antidote for poisoning by the heavy metals because it has toxicity of its own. Among its toxic effects are malaise, nausea, vomiting, salivation, lacrimation, paresthesia, perspiration, sense of warmth and, most commonly, pain in legs, arms, abdomen and head. Acceleration of the pulse and increase in the systolic and diastolic blood pressures are frequently observed. In the antidotal use of BAL these toxic symptoms are usually transient, disappearing in a few hours at most, and may be disregarded in view of the resultant benefit.

The product used in this study was a 10 per cent solution of BAL in peanut oil with 20 per cent benzyl benzoate[9] at the suggestion of Dr. Harry Eagle, Director of the United States Public Health Service Venereal Disease Research and Postgraduate Training Center, Johns Hopkins Hospital. It is hoped that similar studies with BAL glucoside[10] or other less toxic derivatives for intravenous use will eliminate the fear of the use of gold in the treatment of rheumatoid arthritis and permit its more general use in relieving this widespread condition.

REPORT OF CASES

Case 1.—G. W., a white man aged 20, had oxophenarsine hydrochloride therapy initiated March 6, 1946, with 40 mg. of the drug given intravenously. This dosage was repeated March 8, 11, 13, 15 and 18, for a total of six 40 mg. doses, the last dose being overlapped with an intramuscular injection of a bismuth preparation. During the evening of March 18 chills, fever, nausea and vomiting developed, but the patient did not report to his physician. On March 19 a purplish, papular, pruritic rash developed. Another injection of a bismuth preparation was given intramuscularly on March 20, and 1 Gm. sodium thiosulfate and 3 minims (0.18 cc.) epinephrine were administered intravenously. He felt well until the afternoon of March 21, when he had a convulsion and lapsed into a coma. There had been no previous episode of convulsions or loss of consciousness.

On March 22 the patient was brought to Philadelphia General Hospital in a comatose state, and BAL therapy was initiated by the intramuscular injection of 2 cc. of a 10 per cent solution of the drug in oil with 20 per cent benzyl benzoate every four hours for seven doses, or a total of 14 cc. On March 23 a total of 8 cc. was given, 2 cc. every six hours for four doses. The patient remained comatose during the first twenty-four hours of therapy. Thirty-six hours after admission signs of pulmonary edema were manifest. It is not probable that this was due to BAL toxicity. Vigorous therapy with positive pressure oxygen, intravenous hypertonic dextrose and spinal puncture was instituted. The pressure of the spinal fluid was 420 mm. of water. After the spinal puncture respiration became less labored, and by midnight of March 23 there was no respiratory embarrassment. Massive doses of vitamin K were given because of a 50 per cent prothrombin level. Concurrently, large doses of parenteral ascorbic acid and calcium gluconate were given because of the purpuric rash and other purpuric phenomena elicited by the application of the sphygmomanometer cuff.

By March 24 the patient was conscious, answered questions intelligently and appeared to be recovering. Therapy was continued with BAL (2 cc. every six hours for three doses), calcium gluconate, vitamin K and ascorbic acid. On March 25 the dosage of BAL was 2 cc. every six hours for three doses; from March 26 to 31 the dosage was 2 cc. twice a day. During this time the purpura disappeared, the only residual symptoms being a positive Chaddock's sign on the right side and some continuing hepatic damage, as evidenced by 49 per cent blood prothrombin concentration with cephalin-cholesterol flocculation in forty-eight hours. This was a typical case of severe arsenical reaction, which presumably would have terminated in death but for the prompt use of this new antidote.

Case 2.—J. J., a Negro woman aged 63, had previous to hospital admission been given 7,900 mg. of aurothioglycolamilide (Lauron, Endo Products, Inc.), an insoluble gold preparation. One month after discontinuing these injections, the patient noted the development of a dermatitis around the right ear which soon spread to involve the entire right side of the neck, continuing around the neck to the left side and including the skin around

4. Carleton, A. B., and others: The Treatment of Complications of Arseno-Therapy with BAL (British Anti-Lewisite), J. Clin. Investigation **25**: 497 (July) 1946. Eagle, H.: The Systemic Treatment of Arsenic Poisoning with BAL (2,3-Dimercaptopropanol), J. Ven. Dis. Inform. **27**: 114 (May) 1946.

5. (*a*) Gilman, A.; Allen, R. P.; Philips, F. S., and St. John, E.: The Treatment of Acute Systemic Mercury Poisoning in Experimental Animals with BAL, Thiosorbitol and BAL Glucoside, J. Clin. Investigation **25**: 549 (July) 1946. (*b*) Longcope, W. T., and others: The Treatment of Acute Mercurial Poisoning by BAL, ibid. **25**: 557 (July) 1946.

6. American Work on BAL, editorial, Nature, London **157**: 218 (Feb. 23) 1946.

7. McCance, R. A., and Widdowson, E. M.: Observations on the Administration of BAL-Intravenously to Man, Nature, London **157**: 837 (June 22) 1946. McDonald, I. W.: Effect of BAL-Intravenously on Excretion of Copper by the Sheep, Nature, London **157**: 837 (June 22) 1946.

8. Peters, R. A.; Stocken, L. A., and Thompson, R. H. S.: British Anti-Lewisite (BAL), Nature, London **156**: 616 (Nov. 24) 1945.

9. Supplied by Hynson, Westcott & Dunning, Inc.

10. Danielli, J. F.; Danielli, M.; Mitchell, P. D.; Owen, L. N., and Shaw, G.: Development of a Chemotherapy for Systemic Arsenical Poisoning, Nature, London **157**: 217 (Feb. 23) 1946.

the left ear. Similar lesions developed beneath the breasts and under the arms. The dermatitis was pruritic, scaly and fissuring. There was oozing, and the margins of the lesions were extremely erythematous but not indurated. There was practically no limitation of motion in the joints.

On March 15, 1946, ten minutes after the fifth injection of BAL (2 cc. of the 10 per cent solution) there developed shooting pain down the arms and legs of the patient, decidedly injected conjunctivas, flushing of the face, burning sensation in the mouth and salivation. All these symptoms disappeared in three hours except the flushing of the face, which lasted for twelve hours. BAL was withheld for nineteen hours, and then therapy was resumed using a dose of 1 cc. of the 10 per cent solution. No further reactions were encountered. After nine doses of 1 cc. BAL every four hours, the patient was again given an injection of 2 cc. of the solution, and there promptly developed another reaction similar to that of March 15. The blood pressure at the initiation of treatment with BAL was 140 systolic and 100 diastolic; several days after the start of BAL therapy it was 130 systolic and 80 diastolic. The plasma carbon dioxide content was 49 volumes per cent. Under BAL therapy there was prompt disappearance of the exfoliative dermatitis, although scaling from the affected areas continued for some days following treatment.

CASE 3.—D. S., a white woman aged 55, complained on March 12, 1946 of pain and swelling in all her joints. The condition was stated to have commenced about twenty years previously in her hands. There was great pain and stiffness of the joints, which was more pronounced in the mornings. The patient was able to walk only when she was assisted and then with considerable difficulty. The physical examination disclosed emaciation of the patient, whose stature was 4 feet 11 inches (150 cm.) and whose weight was 92 pounds (41.7 Kg.). The tongue was atrophic and red, the heart and lungs were normal. The blood pressure was 160 systolic and 90 diastolic. The abdomen was scaphoid and indicated considerable loss of weight. The skin over the abdomen was loose and wrinkled. The extremities showed typical grade 4 rheumatoid arthritis. All joints seemed to be involved.

On examination of the blood, the hemoglobin content was 78 per cent; the erythrocytes numbered 3.9 million and the leukocytes 9,300; the sedimentation rate was 48 mm. (Westergren, 1 hour) and the blood urea nitrogen was 19.5 mg. per hundred cubic centimeters.

The patient received a course of an organic gold compound [11] in the dosage of 10 mg. twice a week for four doses, 25 mg. twice a week for eight doses and 25 mg. a week for nine doses, a total of 445 mg. During the course of this therapy the patient also received 10 units insulin twice a day after meals to encourage appetite. Her weight was quickly increased to 103 pounds (46.7 Kg.), and the patient made a spectacular recovery, soon being free from pain. Four weeks after receiving the last injection of gold intramuscularly, she reported to the hospital to complain of itching hands and feet. Examination revealed seborrheic dermatitis of the exfoliative type, which involved the webs of the fingers and extended up the backs of both hands. The toes and feet were similarly involved. There was bilateral cheilosis. Itching was generalized. Extract of liver was given intramuscularly for a few days, during which time the lesions grew so severe as to require the admission of the patient to the hospital. On admission, the dermatitis had extended to the wrists and ankles and was of the severe exfoliative seborrheic type on an extremely red base. There was intense itching and pain.

Since similar lesions previously had been seen sometimes to disappear spontaneously, it was decided to withhold BAL therapy for twenty-four hours. At the end of this time considerable improvement was noted, and BAL was withheld for another day. Twenty-four hours later, however, the lesions suddenly became worse and the patient was complaining bitterly. It was decided to give 1.5 cc. BAL in oil in a 10 per cent solution every four hours for twenty-four hours and then 1.5 cc. of the drug a day. After the second day of this treatment, the lesions began to subside. There were no untoward reactions to this dosage, and at the end of nine days the dermatitis had cleared and the patient was discharged. Four weeks later the patient was seen, and the skin was still clear. There was no evidence of rash, although there was complaint of occasional itching.

CASE 4.—R. F., a white woman aged 40, was seen with a condition diagnosed as rheumatoid arthritis of the left shoulder and knee. Gold therapy [11] was administered as follows: 10 mg. on Jan. 17, 21, 24 and 28, 1946, and 25 mg. on Jan. 31; Feb. 4, 7, 11, 14, 18, 21 and 25; March 4, 11, 18 and 25, and April 1 and 8, 1946. At this time, the patient began to complain of soreness of the mouth and itching of the skin. Examination of the mouth revealed tiny ulcers over the soft and hard palates, on the buccal mucous membrane and sublingually. The patient reported on April 17 with intense pain in her entire mouth, and there was itching of the skin and considerable swelling of both lips. She was hospitalized immediately and given 2 cc. of BAL intramuscularly. This dosage was repeated every four hours during the day and night until ten doses had been given. After almost every injection the patient had pain which extended down both arms and had excessive salivation. After the fifth injection of BAL the itching of the skin had disappeared. There were no cutaneous lesions. Subsequent to the ten doses of 2 cc. BAL, the dosage was reduced to 1 cc. and continued until April 23. She received thirty-three injections of 1 cc., thus making a total BAL dosage of 53 cc. After the tenth injection of 2 cc. of the solution there was pronounced relief of the oral symptoms. There was still evidence of ulceration on April 22, 1946, but there was a decided diminution in the size and the severity of the buccal ulcerations, and the patient was so comfortable as to request discharge. At this time the hemoglobin level was 85 per cent; the erythrocytes numbered 4.3 million and the leukocytes 7,500, with 62 per cent polymorphonuclears and 38 per cent lymphocytes.

The response of this patient to BAL therapy was dramatic, as it is unusual for such a severe oral reaction to abate in so short a period. It is believed that BAL can be credited with the prompt subsidence of symptoms.

CASE 5.—F. M., a white woman aged 65, on May 5, 1945 complained of pain and swelling in both knees, wrists and ankles for the past six months. The rest of her history was irrelevant, except that a diagnosis of rheumatoid arthritis was made and a course of gold therapy [11] was suggested. Accordingly, the patient received 10 mg. of the metallic compound for four doses given intramuscularly, 25 mg. for six doses and 50 mg. for four doses, a total of 390 mg. At this stage dryness of the mouth developed, and 4 units crude extract of liver was administered intramuscularly in place of gold twice a week. After four doses of the liver preparation the dryness of the mouth disappeared, and since articular improvement had been so favorable, gold therapy was resumed in a dosage not to exceed 25 mg. The course was completed with seven doses of 25 mg. given at weekly intervals. In all the patient received a total of 565 mg. of the gold compound. At the end of the course of gold therapy the patient was much improved, although there was still some swelling and pain in the joints.

Examination of the blood on Feb. 26, 1946 revealed: hemoglobin 71 per cent; erythrocytes 3.63 million; leukocytes 10,400, and sedimentation rate 58 mm. (Westergren, 1 hour).

On April 10, 1946 the patient complained of a burning sensation in the eyes. Four units of crude extract of liver was given twice a week until July 8. There was little improvement in the ocular condition, but there was no increase in the symptoms. The patient began on July 10 to complain of severe pruritus, and 6 units of crude extract of liver was given intramuscularly. On July 12 the pruritus and conjunctivitis were considerably worse, and 6 units of crude extract of liver was given intramuscularly. Beginning July 17 2 cc. BAL

11. Solganal-B Oleosum, an oily suspension of aurothioglucose, an organic compound containing 50 per cent gold for intramuscular injection, was supplied by Dr. William H. Stoner, Schering Corporation, Bloomfield, N. J.

was given intramuscularly every four hours for two days, a total of 24 cc. Subsequent to this the pruritus and conjunctivitis practically disappeared. There was no untoward reaction to the drug, 2 cc. of which was now administered daily. At the end of one week the pruritus and conjunctivitis had completely disappeared. The patient was last seen Oct. 25, 1946, and she reported that her joints were much improved and that the itching and the burning of her eyes had not recurred.

CASE 6.—M. B., a Negro woman aged 63, had generalized rheumatoid arthritis. From Oct. 30, 1945 to Jan. 17, 1946 the patient received 590 mg. of an organic gold compound; [11] the minimum dose was 10 mg. and the maximum dose 50 mg. Gold therapy was stopped on January 17 because of itching of the skin. The arthritis was much improved. On Feb. 6, 1946 the itching of the skin disappeared and gold therapy was resumed. The dosage was 25 mg. at semiweekly intervals for four doses and 50 mg. for two doses, a total of 790 mg. of the gold compound.

Examination of the blood on Feb. 23, 1946 disclosed a hemoglobin level of 75 per cent; the erythrocytes numbered 3.9 million and the leukocytes 2,500. At this time the patient complained of generalized itching of the skin, and gold therapy was discontinued.

Dermatitis developed March 4, 1946, and 4 units crude extract of liver was administered intramuscularly every other day. On March 15 seborrheic dermatitis of the exfoliative type extended over the face, neck, chest, back and legs. Until March 22 the dermatitis grew progressively worse, so BAL therapy was started. On March 22 and 23 the BAL dosage was 2 cc. every four hours for seven doses, a total of 14 cc. On March 24 and 25 the dosage was 2 cc. every four hours (waking hours only), a total of 16 cc. The pruritus was decidedly lessened. From March 26 to 31, 2 cc. BAL was administered twice a day, a total of 24 cc. At this time the patient complained of lacrimation and of pains in her muscles. From April 1 to 8 the dosage of the drug was 2 cc., a total of 16 cc. The dermatitis was materially improved, although scaling was pronounced. The dosage from April 9 to 22 was 1 cc. BAL twice a day, a total of 28 cc. The scaling had completely subsided. There was no more complaint of cutaneous itching, and the patient was relatively comfortable. The dosage from April 23 to May 5 was 1 cc. of the drug, a total of 14 cc. As there seemed to be no further need for BAL therapy, it was discontinued. Except for slight residual pigmentation of the skin the patient was completely recovered from the dermatitis, and she retained the improvement in regard to the articular symptoms.

This patient received 112 cc. BAL without severe untoward reactions. The degree of recovery from the gold intoxication is considered to be excellent.

SUMMARY

1. Five cases of acute poisoning due to gold and 1 of acute poisoning due to arsenic have been treated successfully with intramuscular injections of BAL (2,3-dimercaptopropanol).

2. Transient symptoms of BAL toxicity included a sense of warmth in the mouth, salivation, flushing of the face, conjunctival injection, lacrimation and pains in the arms and legs. It is suggested that the newer, less toxic BAL derivatives be employed in a study of toxic reactions to gold.

3. The number of cases reported here is too small to justify a definitely favorable interpretation of results, yet the prompt clinical effects are impressive and warrant more extended use of this drug in the relief of gold intoxications, so that eventually chrysotherapy of rheumatoid arthritis may be employed more generally and with less fear of the otherwise devastating toxic reactions.

THE TREATMENT OF GOLD DERMATITIDES

Use of BAL (2,3-Dimercaptopropanol)

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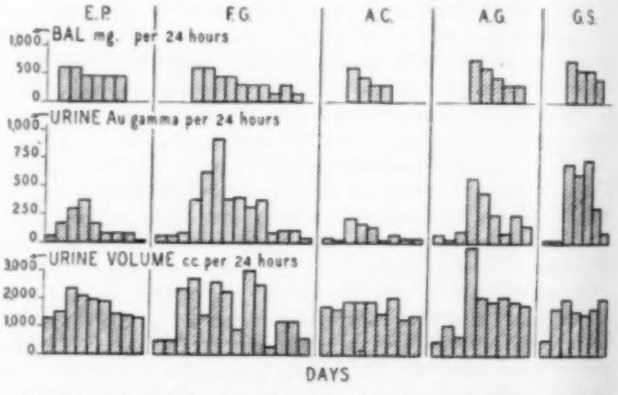
In the past ten years much has been done with gold therapy in the treatment of rheumatoid arthritis. The work of Freyberg [1] and his associates on the metabolism of gold and numerous reports on chrysotherapy by other workers [2] have simplified the problem of gold administration to a certain extent. However, the use of gold compounds in the treatment of rheumatoid arthritis remains on an empiric basis and is still far from universally accepted.[3]

Toxic reactions to gold have been a serious deterrent to its use in therapy. Even under the most careful clinical supervision, the administration of gold to human subjects continues to be attended with definite hazards. The occurrence of certain manifestations of toxicity—notably the dermatitides—cannot be predicted by any known clinical or laboratory method.[4] It is therefore important to control these reactions rapidly once they develop. In certain patients we have been able to stop the pruritus and favorably influence dermatitis due to gold with BAL (2,3-dimercaptopropanol), and it is the purpose of this paper to describe our results.



Excretion of gold in the urine following the administration of BAL (2,3-dimercaptopropanol).

During the war interest was centered on drugs which might counteract the toxic effects of the trivalent arsenical compounds used as antipersonnel agents in the form of lewisite and similar gases. The hypothesis had been formulated that the toxic effects of trivalent arsenical compounds were due to inactivation by arsenic of the sulfhydryl group in enzyme proteins in the host and that the therapeutic effect of arsenic in syphilis was due to a similar affinity for a sulfhydryl group in

From the Edward Daniels Faulkner Arthritis Clinic of the Presbyterian Hospital and the Department of Medicine, Columbia University College of Physicians and Surgeons.

1. Freyberg, R. H.; Block, W. D., and Levey, J.: Metabolism, Toxicity and Manner of Action of Gold Compounds Used in the Treatment of Arthritis, J. Clin. Investigation **20**: 401, 1941.

2. Sundelin, F.: Die Gold Behandlung der chronischer Arthritis unter besonderer Berücksichtigung der Komplikationen, Acta med. Scandinav., 1941, supp. 117, p. 1.

3. Short, C. L.; Beckman, W. W., and Bauer, W.: Medical Progress: Gold Therapy in Rheumatoid Arthritis, New England J. Med. **235**: 362, 1946.

4. (a) Ragan, C., and Tyson, T. L.: Chrysotherapy in Rheumatoid Arthritis, Am. J. Med. **1**: 252, 1946. (b) Sundelin.[3]

the Treponema pallidum.[5] An effort was therefore made to find a drug which would compete effectively for arsenic with the sulfhydryl groups in the various proteins of the body. It was essential that the compound formed with arsenic be inert and that it be excreted promptly.[6] This led to the development of 2,3-dimercaptopropanol, commonly known as British anti-Lewisite, or BAL,[7] which was found to bind arsenic rapidly. It was soon discovered that, to be effective, BAL must be administered soon after the arsenic combined with the sulfhydryl enzymes, otherwise the effect of the metal on the enzyme became irreversible.

Investigation with BAL was extended to other heavy metals, including mercury.[8] In one, cadmium,[7a] the compound formed between the drug and the metal was found to be toxic and to cause appreciable renal damage.

Since we were dealing with a heavy metal in the use of gold compounds in rheumatoid arthritis, we felt that a study of the effects of BAL in toxicity due to gold was indicated. Preliminary studies were made with rats, which were given gold and, after an interval, treated with the drug. No toxic effects similar to those observed with cadmium were found. Sections of kidney, heart and liver of these animals were not abnormal.[9] These results seemed to justify a trial of BAL on human subjects.

Response of Gold Dermatitis to Treatment with BAL

Patient	Total Gold Compound, Mg.	Total Metallic Gold, Mg.	Date Last Gold Administered	Date of Onset of Rash	Date of Start of BAL Therapy	Interval Between Administration of BAL and Onset of Rash, Days	Total BAL, Mg.	Day of BAL Therapy That Pruritus Ceased	Clearing of Rash After Start of BAL Therapy
E. P.	1,050	525	1/ 2/46	1/18/46	1/21/46	3	2,400	1st	6th day
F. G.	1,000	500	12/11/45	12/20/45	3/25/46	95	3,300	Not affected	Still present 8 mos. after treatment
A. G.	385	193	8/20/46	9/ 3/46	9/23/46	20	2,700	1st	Clearing rapidly 1 mo. after BAL
A. C.	355	173	7/ 3/46	7/14/46	8/ 8/46	25	1,650	5d	7th day
G. S.	385	193	8/26/46	9/ 6/46	10/31/46	54	2,400	1st	2 weeks

RESULTS

Five patients with dermatitis due to gold were treated with BAL.[10] The patients were on the wards of the Presbyterian Hospital. Twenty-four hour specimens of urine were collected, and the concentration of gold in the urine was determined by a modification of the method of Block and Buchanan.[11] All 5 patients showed a definite increase in the excretion of gold in the urine coincident with treatment with BAL (see the accompanying chart).

In 4 patients who had had a rash due to gold for less than two months prior to treatment with BAL there was a prompt subsidence of pruritus with rapid clearing of the rash within a month. The fifth patient (F. G.), who had an extensive rash which had been present for three months before treatment, noticed no change in the itching; the rash was resistant to BAL therapy. At present, eleven months after onset, it is clearing slowly after radiotherapy (see the accompanying table). This patient presumably was treated after the toxic changes produced by the gold had become irreversible, since the excretion of gold was equal to or greater than that found in the patients who showed a satisfactory clinical response.

Four patients (E. P., A. C., A. G. and G. S.) were free of symptoms of arthritis while the rash due to gold was maximal; the fifth, F. G., continued to have some pain in the joints. Within a month after treatment with BAL 4 patients (E. P., A. C., A. G. and F. G.) showed an exacerbation of their articular symptoms; the fifth, G. S., had finished BAL therapy only two weeks before this writing. It is our impression based on these observations that the administration of this drug may cause an early relapse of rheumatoid arthritis in patients who are in remission following chrysotherapy. Objective evidence for this has been difficult to obtain because an elevated sedimentation rate may accompany a rash due to gold. This is a small group of patients, and spontaneous remissions and relapses are the rule in this disease.

These observations may throw some light on the mechanism of the action of gold in rheumatoid arthritis and on the development of toxicity following its use. Since it is known that BAL reactivates sulfhydryl enzyme systems poisoned by heavy metals, the dramatic relief of pruritus and gold rash with BAL would seem to indicate that the development of rash with pruritus following chrysotherapy is due to the toxic effect of gold on some enzyme system containing a sulfhydryl group. The recurrence of arthritic symptoms after the rapid elimination of gold brought about by BAL would further suggest that the therapeutic effect of gold is a temporary suppression of the processes which cause activity in rheumatoid arthritis. This is consistent with our observation of the high rate of relapse in patients subsequent to gold compound therapy.[4a]

SUMMARY

1. In rats the administration of BAL (British Anti-Lewisite, 2,3-dimercaptopropanol) and gold was not followed by toxic effects.

2. The drug was used to treat 5 patients with dermatitis due to gold.

5. Eagle, H.; Magnuson, H. J., and Fleischman, R.: Clinical Uses of 2,3-Dimercaptopropanol (BAL): I. The Systemic Treatment of Experimental Arsenic Poisoning (Mapharsen, Lewisite, Phenyl Arsenoxide) with BAL, J. Clin. Investigation **25**: 451, 1946. Carleton, A. B.; Peters, R. A.; Stocken, L. A.; Thompson, R. H. S.; Williams, D. I.; Storey, I. D. E.; Levey, G. A., and Chance, A. C.: Clinical Uses of 2,3-Dimercaptopropanol (BAL): VI. The Treatment of Complications of Arsenotherapy with BAL, ibid. **25**: 497, 1946.

6. Wexler, J.; Eagle, H.; Tatum, H. J.; Magnuson, H. J., and Watson, E. B.: Clinical Uses of 2,3-Dimercaptopropanol (BAL): II. The Effect of Bal on the Excretion of Arsenic in Normal Subjects and After Minimal Exposure to Arsenical Smoke, J. Clin. Investigation **25**: 467, 1946.

7. (*a*) Peters, R. A.; Stocken, L. A., and Thompson, R. H. S.: British Anti-Lewisite, Nature, London **156**: 616, 1945. (*b*) Waters, L. L., and Stock, C.: BAL (British Anti-Lewisite), Science **102**: 601, 1945.

8. Longcope, W. T., and Luetscher, J. A.: Clinical Uses of 2,3-Dimercaptopropanol (BAL): XI. The Treatment of Acute Mercury Poisoning by BAL, J. Clin. Investigation **25**: 557, 1946. Gilman, A., Allen, R. P.; Phillips, F. S., and St. John, E.: Clinical Uses of 2,3-Dimercaptopropanol (BAL): X. The Treatment of Acute Systemic Mercury Poisoning in Experimental Animals with BAL, Thiosorbitol, and BAL Glucoside, ibid. **25**: 549, 1946.

9. Dr. Joseph E. Flynn of the Department of Pathology examined these sections.

10. Dr. Harry Eagle of the Johns Hopkins Hospital and the United States Public Health Service kindly furnished us with our original supply of BAL before it became generally available.

11. Block, W. D., and Buchanan, O. H.: The Microdetermination of Gold in Biological Fluids, J. Biochem. **136**: 379, 1940.

3. In all 5 patients there was a significant excretion of gold in the urine coincident with the administration of this drug.

4. In 4 patients in whom the dermatitis had existed for less than two months the pruritus ceased and the rash cleared under treatment with BAL. In 1 patient in whom the rash had existed for three months the pruritus continued, as did the rash.

5. It is suggested that a gold rash is due to the toxic effect of gold on an enzyme system containing a sulfhydryl group.

6. Four patients had an increase in their symptoms of rheumatoid arthritis within a month following the administration of BAL. The fifth has just finished BAL therapy.

7. This is construed as further suggestive evidence that the therapeutic effect of gold is a temporary suppression of the processes which cause activity in rheumatoid arthritis.

TREATMENT OF TWO REACTIONS DUE TO GOLD

Response of Thrombopenic Purpura and Granulocytopenia to BAL Therapy

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The use of gold salts in the treatment of rheumatoid arthritis is not without danger. We have encountered an incidence of toxic reactions of about 20 per cent. Among the frequent reactions are dermatitis, stomatitis and glossitis. Those less frequent in our experience are colitis, albuminuria, hematuria, nephrosis, purpura and granulocytopenia. The treatment of the more serious reactions (nephrosis, exfoliative dermatitis, purpura and granulocytopenia) has been unsatisfactory, and fatalities have occurred in the past. Recently, when we encountered 2 reactions (thrombopenic purpura and granulocytopenia), it was decided to employ BAL (British Anti-Lewisite, 2,3-dimercaptopropanol), as this substance has been valuable in the treatment of other types of metallic poisoning (that due to arsenic and mercury).

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REPORT OF CASES

CASE 1.—A white man aged 34, who weighed 160 pounds (72.6 Kg.), was seen in November 1945 with rheumatoid arthritis, which had been present since February 1945. He was started on gold therapy in January 1946 and was given gold sodium thiomalate (Myochrysine Merck) from Jan. 22, 1946 to April 30, 1946. Gold was administered intramuscularly at weekly intervals. The largest single dose was 40 mg., and the total amount of gold administered was 360 mg.

TABLE 2.—*Hematologic Data in Case One*

Date	Hemoglobin, Gm./100 Cc.	Red Blood Cell Count	Platelets
2/19/46	14.0	5,000,000	Normal
5/ 8/46	11.0	4,450,000	None
5/13/46	12.0	4,500,000	None
5/27/46	8.6	3,000,000	2,000
6/ 7/46	8.6	2,900,000	8,000
6/17/46	8.4	3,350,000	5,000
7/10/46	9.5	4,040,000	8,000
7/29/46	9.9	3,970,000	7,900
8/ 8/46 BAL started			
8/ 9/46	12.5	4,500,000	36,000
8/16/46	14.0	4,400,000	60,000
8/19/46 BAL discontinued			
8/21/46	12.0	4,260,000	82,300
8/31/46	8.6	3,200,000	120,000
9/ 9/46	9.6	3,300,000	130,000
9/23/46	12.5	4,400,000	130,000
10/29/46	....	.....	80,000
11/18/46	14.4	5,000,000	130,000

White blood counts and differential counts normal; urinalyses negative.

On May 8, 1946 the patient complained of bleeding from his gums, and a few purpuric areas were found on his arms and legs. Gold therapy was discontinued, and he was started on a regimen of extract of liver administered intramuscularly, with ascorbic acid and vitamin K given intravenously. Examination of the blood on May 8 failed to reveal any platelets. He was admitted to the hospital on May 10 and was there until June 10. During his hospital stay, he was treated with repeated transfusions of blood, folic acid and massive parenteral vitamin therapy. There was a slight improvement of the bleeding time and platelet count and of the bleeding phenomena clinically. From June 10 to August 8 he continued to have some bleeding from his gums and a few purpuric and petechial spots on his body. Several blood counts were performed in this period. The number of platelets was exceptionally low in every count, and the bleeding time remained prolonged. Repeated urinalyses were normal.

About July 10 the patient began to complain of severe headache. No neurologic signs could be determined on repeated examinations. He refused to return to the hospital until

TABLE 1.—*Hematologic Data in Case Two*

Date	Hemoglobin, Gm./100 Cc.	Red Blood Cell Count	White Blood Cell Count	Juveniles	Bands	Filaments	Eosinophils	Basophils	Lymphocytes	Monocytes	Plasma Cells	Platelets
9/13/46	7.4	2,900,000	4,400	..	27	14	..	..	55	4	..	174,000
9/20/46	7.2	3,000,000	2,100	..	17	10	..	..	68	5	..	.....
9/25/46	7.6	2,900,000	2,800	..	1	19	..	1	63	6	..	.....
10/ 2/46	8.2	3,300,000	2,100	..	6	15	2	2	72	2	..	250,000
10/ 8/46	9.2	3,400,000	2,900	..	3	4	2	1	81	6	3	.....
10/12/46	10.2	3,500,000	2,100	1	2	1	1	1	81	13	..	290,000
10/14/46	....	.....	3,000	..	2	..	..	1	82	15	..	.....
10/14/46	BAL started											
10/15/46	10.9	3,900,000	1,800	..	1	..	2	1	72	24	..	250,000
10/16/46	....	.....	3,000	..	1	..	1	1	83	14	..	.....
10/17/46	11.2	4,000,000	2,800	2	13	1	1	..	41	42	..	.....
10/19/46	....	.....	2,300	1	28	10	..	..	47	14	..	.....
10/21/46	11.9	4,200,000	3,700	1	24	20	..	..	31	14	..	270,000
10/22/46	....	.....	6,400	1	19	23	2	..	50	5	..	.....
10/23/46	BAL discontinued											
10/24/46	12.5	4,500,000	3,500	..	29	22	2	..	44	3	..	.....
10/26/46	....	.....	6,700	..	18	24	1	2	44	11	..	300,000

Remaining white blood cell counts and differential counts were essentially the same as on Oct. 26, 1946.

July 31, when he was admitted for three blood transfusions. He was discharged on August 3, with no complaints. On August 7 he again complained of a severe headache, and on August 8, after he was seen at home in a comatose state, he was readmitted to the hospital. The neurosurgeon diagnosed a subarachnoid hemorrhage and diffuse petechial intracerebral hemorrhages due to the thrombopenia. The pressure of the spinal fluid was elevated (360 mm. of water), and there was a faint xanthochromic color to the fluid. Because of the critical condition of the patient and his failure to respond to all previous treatment, BAL therapy was instituted on August 8. He was given 1.8 cc. (180 mg.) of a 10 per cent solution of BAL in oil [1] intramuscularly every four hours for the first forty-eight hours and then 1.8 cc. of the drug twice a day for ten days. Within twenty-four hours after the initiation of BAL therapy the patient was conscious, responded well and showed no further evidence of any cerebrovascular disturbance. His spectacular improvement has been maintained to the present time. Subsequent to BAL therapy, the platelet count increased from about 15,000 to 120,000, and there has been no evidence of any bleeding phenomena or neurologic disturbance. The last platelet count, on November 18, was 130,000.

During this patient's course of BAL therapy there developed inflammation (redness, heat, pain and induration) of the right buttock, which subsided in forty-eight hours under conservative treatment. No other reaction was encountered. Representative hematologic data are given in table 2.

CASE 2.—A white man aged 54, who weighed 117 pounds (53 Kg.), was seen in September 1946 with severe generalized rheumatoid arthritis of six years' duration. He was hospitalized on September 13 and was started on intensive therapy (including gold, transfusions of blood, physiotherapy and roentgen therapy to several joints). He was given gold sodium thiomalate, 10 mg. at two day intervals, receiving a total of 140 mg. intramuscularly between September 13 and October 8, when it was discontinued because of granulocytopenia. BAL therapy was instituted on the afternoon of October 14, when the granulocytopenia became worse (only 3 granular cells were present) and the patient began to feel ill. He was given 1.4 cc. (140 mg.) of the solution of BAL [1] intramuscularly every six hours for the next forty-eight hours and then 1.4 cc. twice a day for eight days. At the end of seventy-two hours (October 17) the patient felt greatly improved, and apparently a satisfactory response to BAL therapy had occurred. Within this period the granulocytes increased to 17 cells. By October 23 an average of 45 granular cells was present. This patient has maintained a normal differential count. Representative hematologic data are given in table 1.

An abscess of the left buttock at the site of injection was incised and drained of a large amount of purulent material.

SUMMARY

Two serious reactions (thrombopenic purpura and granulocytopenia) to gold salt therapy have been described. Spectacular recovery occurred in each instance. The usual course of such complications appears to have been definitely altered by BAL (2,3-dimercaptopropanol) therapy. No change in the status of the arthritis occurred.

A possible complication was the incidence of inflammation of the buttock in case 1 and a gluteal abscess which required drainage in case 2.[2]

BAL therapy deserves further trial in the treatment of reactions caused by gold salts.

1. The dosage of BAL (supplied by Hynson, Westcott & Dunning, Inc.) was calculated on the basis of 2.5 mg. of the drug per kilogram of body weight.

2. Carleton, A. B.; Peters, R. A.; Stocken, L. A.; Thompson, R. H. S., and Williams, D. I.: Clinical Use of 2,3-Dimercaptopropanol (BAL): The Treatment of Complications of Arseno-Therapy with BAL (British Anti-Lewisite), J. Clin. Investigation **25**: 497 (July) 1946.

PERONEAL PALSY CAUSED BY CROSSING THE LEGS

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Of the peripheral nerves closest to the surface, least protected and most vulnerable to both acute and chronic trauma, the common peroneal nerve ranks high. Thus, Wilson [1] places it second only to the musculospiral and ulnar nerves for frequency of damage, while it stands first in Cassirer's [2] series of over 1,000 cases. This nerve is particularly susceptible to injury not only where it runs its independent course but even as it runs side by side with the tibial nerve in the sciatic trunk. For example, among 71 cases of wounds of the sciatic nerves studied by Stewart and Evans (quoted by Wilson [1]), signs were restricted to the peroneal nerve in 33 cases and in only 3 to the tibial. Between 10 and 15 per cent of all injuries of the peripheral nerves, according to Clark,[3] involve the common peroneal nerve.

Because of its anatomic relationships, the nerve is particularly exposed to injury, both of the pressure and the tension variety, as it bends around the neck of the fibula. At this point both the main stem and its two branches, the deep and superficial peroneal nerves, are thinly covered and therefore easily subject to the effects of direct pressure. Furthermore, the common peroneal nerve being relatively fixed, flexion at the knee exerts abnormal tension on it, while at the same time it compresses the nerve against the neck of the fibula. Thus the nerve suffers the effects of both pressure and traction from such positions as crouching, squatting or kneeling, which accounts for the long-recognized occurrence of peroneal palsy as an occupational neuritis in trades or occupations requiring the adoption of these positions. Thus it has been known to occur commonly in miners, agriculturists and coal pickers.[4] More obvious cases of palsy due to pressure on the peroneal nerve result from the application of casts [5] or adhesive plaster,[6] or are secondary effects of positions on the operating table,[7] as in protracted labor. Persistent strain or continuous repetition of movement may induce "neuritis," according to Wilson,[1] especially when there is a preexisting toxicosis. Thus, Wilson has seen foot drop develop after long hours at the treadle of a sewing machine in the case of a woman suffering from rheumatism.

The advent of war with the numerous new occupations which it has engendered has led to the assumption of new occupational positions, some of which are inevitably traumatic to susceptible peripheral nerves. Laird and Mueller [8] have described peroneal palsy, partial and temporary, in bombardier cadets subsequent to their

1. Wilson, S. A. K.: Neurology, edited by A. N. Bruce, Baltimore, Williams & Wilkins Company, 1941, vol. 1, pp. 345-346.
2. Cited by Wilson.[1]
3. Clark, D. F.: External Popliteal Nerve Injuries, Illinois M. J. **58**: 117-121 (Aug.) 1930.
4. Alpers, B. J.: Clinical Neurology, Philadelphia, F. A. Davis Company, 1945, p. 183.
5. Freund, E.: Peroneal Lesions in Orthopedic Conditions, Am. J. Surg. **44**: 387-389 (May) 1939.
6. Selig, S.: Peroneal Paralysis Due to Compression by Adhesive Plaster, J. Bone & Joint Surg. **20**: 22-223 (Jan.) 1938.
7. Woltman, H. W.: Postoperative Neurologic Complications, in Collected Papers of the Mayo Clinic and the Foundation, Philadelphia, W. B. Saunders Company, 1937, vol. 29, pp. 713-722.
8. Laird, G. J., and Mueller, M. J.: Bombardier's Palsy, Air Surgeon's Bull. (no. 9) **1**: 19 (Sept.) 1944.

kneeling over the bomb sights on long bombing missions. They point out that in that position the circulation to the leg is decreased simultaneously with the subjection of the peroneal nerve to abnormal tension. We have had the opportunity to see a number of cases of unilateral peroneal palsy occurring in persons in various types of military occupations, particularly in air crew technicians. Eight cases of peroneal paralysis have been collected, while many more have been seen in which there were only mild subjective sensory phenomena. The occurrence of this complication in a new and constantly growing occupation is worth reporting and pointing out to aid in quick recognition in the future and in prompt institution of remedial measures.

Sitting with the legs crossed, a ubiquitous habit in modern man, is strikingly brought out as a common

Fig. 1.—Photograph of patient of case 1 with right leg crossed over left, the head and neck of the right fibula being outlined. It demonstrates the close opposition of this bone segment to the left patella and the external condyle of the left femur, the right common peroneal nerve being compressed between them.

factor in producing the symptoms referable to the peroneal nerve in our observed cases. This habit, particularly prevalent in men, has been described a few times before as a factor in the production of peroneal palsy, but has for the most part been overlooked and neglected as a causal agent in this condition. Except for Gerhardt (quoted by Oppenheim[9]), who described a case in which peroneal palsy developed in a man who had fallen asleep with his knees crossed, Woltman[10] was the first really to direct attention to this etiologic factor. This author, in 1929, collected 27 cases from the files of the Mayo Clinic and stressed the importance of loss of weight, senility and protracted convalescence as prerequisites in the operation of this factor. Eaton[11] reported another case in 1937 in which "only after considerable loss of weight had the patient been able to cross the legs completely enough to traumatize the common peroneal nerve." This author also pointed out that failure to recognize the causation in his case almost led to needless laminectomy. Dunning[12] recently reported a case of bilateral peroneal palsy due to pressure from a long-standing habit of crossing the legs. This factor is also mentioned by Wilson,[1] who comments: "In view of the frequency with which sitting with pressure of one lower limb crossed on the other produces the feeling that the leg or foot has gone to sleep, it is curious how seldom genuine sleep palsies of the kind have been reported."

Our experience with the cases to be reported and our questioning of many persons who chronically sit with their legs crossed have revealed that this factor is much more commonly operative than hitherto supposed and should be suspected in every case of peroneal palsy, particularly of the unilateral type. Often a combination of factors produces damage of the peripheral nerves. The following 8 cases, which emphasize a rather interesting group of such causal factors, are believed not only to be of significance for military medicine, but to have general neurologic interest and importance.

REPORT OF CASES

Case 1.—A 33 year old radio mechanic and operator was admitted to the hospital in May 1944 because of inability to raise his right foot. A month before, while he was sending and receiving code, the top of his right foot up to the ankle "went to sleep." He had been sitting for about an hour with legs crossed, the right knee uppermost and wedged beneath the table top. When he stamped about to "awaken" his foot, he first noted that he was unable to raise it. The paresthesia vanished in a short time and did not reappear, but the loss of motor power remained unchanged up to the time of admission.

The patient volunteered that he habitually crossed his right leg over the left in sitting. This had occasionally resulted in brief tingling of the top of the right foot, but never in weakness. For six weeks prior to onset of the palsy the soldier had sat daily for several hours with his knees crossed and wedged beneath the table top. There was no history of alcoholism, exposure to lead or evidence of any other exogenous or endogenous neurotoxin.

Examination revealed a tall, asthenic man, 5 feet 11 inches (180.3 cm.) in height, weighing 165 pounds (74.8 Kg.). There was a steppage gait on the right, with motor disturbances typical of involvement of the common peroneal nerve but without sensory disturbances. Electrical studies revealed a partial reaction of degeneration in the muscles supplied by the right common peroneal nerve. When the patient sat with legs crossed in his habitual manner, it was readily observed that the right common peroneal nerve was compressed between the head of the right fibula on the one hand and the left patella and external condyle of the left femur on the other (fig. 1). The nerve was not thickened.

Comment.—A case of unilateral peroneal palsy, of apparently obscure causation at first, was readily explained on the basis of chronic pressure on the common peroneal nerve due to the habit of sitting with legs crossed. For years the nerve had been repeatedly traumatized, but a warning paresthesia had prevented prolonged pressure. Under the stress of military activity, this signal of alarm had been ignored, resulting

9. Oppenheim, H.: Diseases of Nervous System, translated by Edward E. Mayer, Philadelphia, J. B. Lippincott Company, 1900, p. 277.
10. Woltman, H. W.: Crossing the Legs as a Factor in the Production of Peroneal Palsy, J. A. M. A. **93**: 670-672 (Aug. 31) 1929.
11. Eaton, L. M.: Paralysis of the Peroneal Nerve Caused by Crossing the Legs: Report of Case, Proc. Staff Meet., Mayo Clin. **12**: 206-208 (March 31) 1937.
12. Dunning, H. S.: Injury to the Peroneal Nerve Due to Crossing the Legs, Arch. Neurol. & Psychiat. **51**: 179-181 (Feb.) 1944.

in the more damaging compression. Moreover, additional traumatizing pressure was produced by wedging the crossed legs beneath a table top. The action of toxins could be ruled out. A dissociated form of paralysis was present, which will be commented on later. It might be of interest at this point to mention that this patient's symptom was considered a conversion reaction and that he was treated psychotherapeutically and with narcotherapy for several weeks prior to the establishment of the correct diagnosis.

CASE 2.—A 37 year old soldier was seen in consultation in June 1944 because of a left foot drop of six months' duration. The condition was first noted a month after the soldier's induction with gradual weakness of the left foot and numbness of the lateral aspect of the left leg. There were no other neurologic symptoms. There was a history of alcoholism in the past, but there had been no drinking for eight years prior to the present complaints. There was no evidence for any other exogenous or endogenous toxins. For three or four months prior to his induction the soldier had been a milking machine operator, kneeling in a squatting position during almost the entire working day. More significantly the soldier admitted a life-long habit of crossing his legs while sitting, practically always the left over the right. It is of interest that he had been in several other hospitals because of his foot drop, and efforts were made to rule out a clinical suspicion of a lesion of the spinal cord.

Examination revealed a tall, angular man, 6 feet 1½ inches (186.7 cm.) tall, weighing 172 pounds (78 Kg.). Neurologic examination demonstrated the classical motor and sensory disturbances of involvement of the left common peroneal nerve. This nerve was palpable and definitely thickened in its course lateral to the neck of the fibula. Electrical studies showed a partial reaction of degeneration in the involved muscles. When the patient sat with the left leg crossed over the right as he habitually did, it was readily demonstrated that the left common peroneal nerve was compressed between the neck of the left fibula on the one hand and the right patella and external condyle of the right femur on the other (fig. 2).

Comment.—In this case the seemingly harmless habit of sitting with crossed legs resulted in a vulnerable peroneal nerve, which finally succumbed to added insult. Prolonged tension on the nerve due to the constant squatting posture in the operation of the milking machine and similar positions assumed during basic training were sufficient to produce the disabling neuropathy. It is unlikely that the patient's long past alcoholism played any causal role.

CASE 3.—A 44 year old airplane mechanic was seen in consultation in July 1944 because of difficulty in walking due to a right foot drop of eighteen months' duration. The patient also occasionally noted "numbness" of the dorsum of the right foot and the lateral aspect of the right leg. The symptoms had been stationary for the last year.

The patient was a moderate user of alcohol, rarely to intoxication. From 1929 to 1932 he had as a painter been exposed to lead but had had no apparent effects. During the past two years his military occupation had required the assumption for considerable periods of kneeling, crouching and squatting positions, all such as to result in prolonged tension on the peroneal nerves. When specifically questioned, he disclosed his habit of sitting with legs crossed, almost always with right over left.

The patient was an asthenic man, 5 feet 7 inches (170.2 cm.) tall, weighing 146 pounds (66.2 Kg.). There was steppage gait on the right. Neurologic examination revealed the classical motor and sensory disturbances of involvement of the right common peroneal nerve. When the patient sat in his habitual manner, right leg crossed over left, the right common peroneal nerve was shown to be compressed between the neck of the right fibula on the one hand and the left patella and external condyle of the left femur on the other.

Comment.—The moderate use of alcohol and the exposure to lead many years prior to the palsy cannot be considered causally relevant. The prolonged tension incident to occupational positions produced a traumatic neuritis in a nerve previously sensitized by chronic pressure due to the habit of sitting with legs crossed.

CASE 4.—A 28 year old soldier was admitted to the hospital in August 1944 because of weakness of the right foot of three weeks' duration. At the time of its onset there was an evanescent numbness of the right leg. The patient had been an armorer and gun turret maintenance man at an Army Air Force base for nine months at the time his difficulty began. Because of his unusual height he had to assume awkward and cramped positions while working within the gun turrets. In addition his duties required him to work long periods in squatting, crouching and kneeling postures (fig. 3). Questioning elicited the presence of a life-long habit of sitting with legs crossed,

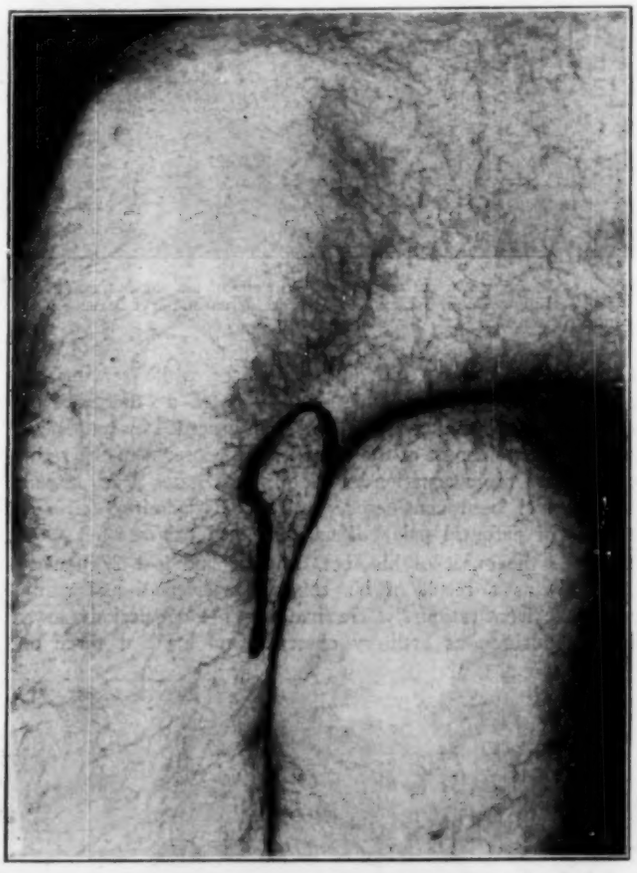

Fig. 2.—Photograph of patient of case 2 with left leg crossed over the right, the head and neck of the left fibula being outlined. It demonstrates the close opposition of this bone segment to the right patella and external condyle of the right femur, the left common peroneal nerve being compressed between them.

almost always with the right over the left, which had frequently resulted in numbness and tingling of the right leg and foot. The patient had been drinking several bottles of beer daily for the past few years. There was no history of exposure to lead or other neurotoxins.

The patient was an asthenic, young man, 6 feet 4 inches (193 cm.) tall, weighing 184 pounds (83.5 Kg..) Neurologic examination revealed the typical motor and sensory disturbances of involvement of the right peroneal nerve. When the patient sat with legs crossed as was his wont, it was readily demonstrated that the right common peroneal nerve was pinched between the right fibula on the one hand and the left patella and the external condyle of the left femur on the other (fig. 5).

Comment.—A nerve subjected to the deleterious effects of repeated pressure finally succumbed to a final insult due to prolonged tension during occupational

postures. The mild alcoholism probably did not contribute to the injury. This case demonstrates the wisdom of the height limitation imposed on gunners. A ball turret, as is well illustrated in figure 4, imposes a cramped and consequently nerve-traumatizing position on a tall occupant.

Fig. 3.—Photograph of patient of case 4 in one of his working postures. In this kneeling position the vulnerable right peroneal nerve is subjected to traumatic tension.

Case 5.—A 38 year old artillery officer while serving on the Anzio beachhead in January, 1944, noted a "flapping" of his right foot in walking. This had been preceded by numbness along the lateral aspect of the right leg and dorsum of the right foot. Before his evacuation to the United States a functional diagnosis had been considered, but he was admitted with a diagnosis of peroneal palsy of undetermined origin.

Prior to the onset of his foot drop he had lost 27 pounds (12.2 Kg.) as a result of his combat experiences and many weeks on "iron rations." He had spent long periods in a squatting position as artillery observer and at least three or

Fig. 4.—Drawing of a tall man, such as the patient of case 4, in a ball turret illustrates the awkward posture, which results in tension on the peroneal nerve.

four hours daily sitting with the right leg crossed over the left as he rested a map board on his lap for study. He volunteered that it was his confirmed habit to sit with crossed legs, always the right over the left. This would frequently result in "sleepiness" of the right leg and foot. For many years in his civilian capacity as football coach he assumed the squatting position frequently. There was no history of chronic alcoholism.

The patient was 5 feet, 10½ inches (179.1 cm.) tall, weighing 154 pounds (69.9 Kg.). There was a right steppage gait. Neurologic examination revealed only the typical motor and sensory disturbances of involvement of the right common peroneal nerve. This nerve was moderately thickened and, when the patient crossed his legs in his habitual manner, it was seen to be compressed between the right fibula and the left patella.

Comment.—This case illustrates the collaboration of several factors in the final production of the neuritis. To begin with, the common peroneal nerve had been rendered vulnerable by the habit of sitting with crossed legs and to a lesser extent by squatting for long periods as a football coach. As a result of the loss of weight the nerve was deprived of its protective covering and was more susceptible to the damaging effects of pressure incident to crossing the legs. The tension on the nerve due to long periods of squatting and a possible nutritional deficiency per se were additional causal factors.

Fig. 5.—Photograph of patient of case 4 with right leg crossed over the left, the head and neck of the right fibula being clearly outlined. It well demonstrates the opposition of this bone segment to the left patella and the external condyle of the right femur, the right common peroneal nerve being tightly compressed between them.

Case 6.—A 21 year old airplane instrument mechanic was seen in consultation in March 1945 because of a left foot drop. About a year previously he had experienced symptoms of a left foot drop. About a year previously he had experienced symptoms of a duodenal ulcer. He lost 25 pounds (11.3 Kg.) prior to his hospitalization in November 1944 because of his digestive symptoms. His duty assignment as instrument mechanic had necessitated frequent crouching and squatting while working in the close quarters of the nose of planes. During his hospitalization from November 1944 to January 1945 he acquired the habit of sitting with legs crossed, left over right, while reading, playing cards, etc. His foot drop developed

in January 1945. There was no history of alcoholism or exposure to any exogenous or endogenous toxins.

The patient was a thin, asthenic person, 5 feet 10 inches (177.8 cm.) tall, weighing 140 pounds (63.5 Kg.). Neurologic examination revealed the motor and sensory disturbances typical of involvement of the left common peroneal nerve. There was characteristic steppage gait on the left. When he crossed his legs, the left common peroneal nerve was seen to be compressed between the left fibula and the right patella.

Comment.—The habit of sitting with legs crossed conspired with several other factors in this case to produce a pressure neuritis of the left common peroneal nerve. First the nerve had been subjected to undue tensions during occupational positions. Then considerable loss of weight had robbed it of its protective fatty cover, making it more vulnerable to the deleterious pressure effects due to crossing the legs habitually. The nutritional disturbance incident to the peptic ulcer may have been a contributory cause.

CASE 7.—A soldier was admitted to the hospital in March 1945 because of a right foot drop of ten months' duration. At the time of onset he had completed six months of military service. He had had months of training during which crouching and squatting positions were frequent. He had also been on duty with a supply outfit and often had had to squat to obtain supplies from lower shelves. He had long had the habit of sitting with legs crossed, right over left, and would do so while reading or more recently while typewriting. The patient was only a mild social imbiber. There was no history of any other toxic influence.

Examination revealed a tall asthenic man, 6 feet 1 inch (185.4 cm.) tall, weighing 160 pounds (72.6 Kg.). Neurologic examination revealed no abnormalities except for the classical motor and sensory disturbances caused by damage of the right common peroneal nerve. When the patient demonstrated his habitual sitting position, the right common peroneal nerve was noted to be compressed between the head of the right fibula on the one hand and the left patella and external condyle of the left femur on the other.

Comment.—This case demonstrates again the combination of chronic pressure due to crossing of legs and of prolonged tension due to abnormal positions to produce a traumatic neuritis of the common peroneal nerve.

CASE 8.—A 34 year old airplane mechanic was admitted to the hospital in August 1945 with widespread flaccid paralysis of all four extremities and a left facial palsy. After thorough study, a diagnosis was made of acute polyradiculoneuritis of Guillain-Barré with albuminocytologic dissociation in the spinal fluid. His course in the hospital was one of gradual improvement and resumption of normal power. When seen seven months later, in March 1946, the patient had regained much of his strength, but the chief residual disability was a right foot drop.

Questioning revealed that for over a year prior to the onset of the acute infectious illness the patient had worked in squatting, crouching and kneeling positions as an airplane mechanic. It was further elicited that the patient was a habitual leg crosser, almost always with the right over the left. He had also been a heavy drinker for over fifteen years.

The patient was a thin asthenic man, 5 feet 11 inches (180.3 cm.) tall and weighing 145 pounds (65.8 Kg.). Neurologic examination revealed mild residual evidence of widespread disease of the lower motor neurons, but the outstanding abnormality observed, out of proportion to the others, was a right peroneal palsy, with a steppage gait and the typical motor involvement. Sitting with his legs crossed in the usual position showed the right common peroneal nerve tightly compressed between the right fibula on one side and the left patella and external condyle of the left femur on the other.

Comment.—In this case there was an acute and widespread infectious process involving the lower motor neurons and resulting in a generalized flaccid paralysis. Chronic severe alcoholism possibly played a causal role in predisposing the peripheral nervous system to infection. Of special importance, however, in determining that the last residual would be a unilateral peroneal palsy was the specific trauma to that nerve by leg crossing and by the traumatizing occupational positions. The multiplicity of causal factors is here well brought out.

COMMENT

Woltman [10] concluded from his series that "crossed leg palsy usually does not appear until the fourth or fifth decade, and is seen most often in patients who

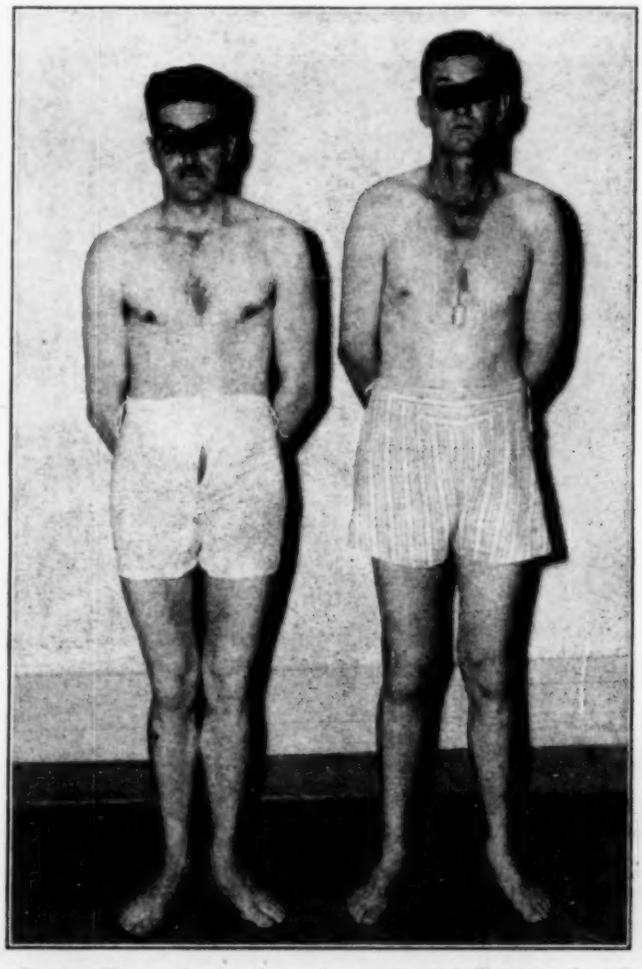

Fig. 6.—Photograph of patients of cases 1 and 2 illustrates the tall, long-legged type of person prone to contract peroneal palsy due to crossing the legs.

are forced into inactivity due to illness, and who have lost considerable weight." The average age of his patients was 51, and most of his patients had had a weight loss averaging 34 pounds (15.4 Kg.). The cases which we have reported demonstrate that middle age, arteriosclerosis and loss of weight with inactivity due to illness are not the prerequisites for the development of peroneal palsy due to crossing the legs.

Our patients were predominantly healthy military personnel in active service, with an average age of 33½ years. Activity rather than inactivity played an important precipitating role. All the patients were engaged in military activities placing undue tension on the sensitized peroneal nerve. In only 2 cases did the factor of loss of weight have any causal relevance.

Evaluation of our cases clearly demonstrates that the most important predisposing factor for development of palsy in those who habitually cross their legs is the build of body. It is the tall, long-legged person who is prone to have palsy due to crossing the legs. Our patients were tall, relatively thin and long-legged men, with an average height of 5 feet 11½ inches (181.6 cm.) (fig. 6). Observation of numerous other subjects has shown us that the pyknic, short-legged person is rarely liable to traumatize chronically the peroneal nerve by habitual crossing of the legs. When such persons cross the legs, there is a distance of as much as 6 inches (15.2 cm.) between the neck of the fibula of the uppermost leg and the patella of the lower one (fig. 7). The athletic type or those with intermediate body habitus are also generally safe from this type of trauma to the peroneal nerve. It is the thin, "daddy-long-legs" type of person in whom this possibility should always be considered in evaluating a case of peroneal palsy.

Fig. 7.—Photograph of the crossed legs of a pyknic, short-legged person. The head and neck of the left fibula are outlined to illustrate the long distance of this bone segment from the patella and the femoral condyle of the opposite limb, the common peroneal nerve thus being in no danger of compression.

Observation and discussion with many persons of this build clearly revealed that practically all these persons experience discomfort when crossing their legs in the form of paresthesia and other sensory disturbances along the distribution of the peroneal nerve. In most cases, however, these irritative sensory phenomena are a protective mechanism and lead to quick uncrossing of the legs. Symptoms of motor paralysis are likely to occur in such persons when for some reason this protective mechanism fails. Thus, in occupations in which these persons sit with their legs crossed for long periods while their attention is diverted, or when they fall asleep in this position, more serious symptoms are likely to occur. In many cases the chronic habit only sensitizes the nerve and makes it more vulnerable to later traumatic or toxic agents.

Whenever unilateral peroneal palsy occurs as the only manifestation of a toxic or other systemic disturbance, particularly in persons of the habitus described, the patient should be carefully questioned about sitting habits. Cases of isolated peroneal palsy have been described following the use of sulfapyridine[13] and other drugs.[14] It is not unlikely that in such cases the complication may be the result of the toxic effect of the drug on a nerve previously damaged and rendered vulnerable by the chronic pressure incident to the habit of crossing the legs. It is an extremely simple and expedient procedure in such cases to determine the presence of this factor, and thus readily to eliminate a major cause. Case 8 in our series is a case in point and illustrates the specific action of a generalized infectious process on a locally traumatized and vulnerable nerve.

We agree with Woltman in his description of the particular bones which are involved in exerting the viselike pressure. Our examinations have shown that the nerve is compressed between the head and the neck of the fibula of the uppermost leg on the one hand, and the patella and external condyle of the femur of the lowermost leg on the other. In some cases the patella forms most of the under jaw of the vise, while in others it is the external condyle of the femur which does. Our cases have not borne out the contention of Dunning, who in his case states that the peroneal nerve is compressed between the upper third of the shaft of the fibula of the uppermost leg and the head of the fibula of the lowermost leg.

Of the 8 patients reported on, all had been engaged in military duties requiring the daily assumption of occupational positions traumatic to the common peroneal nerve. It is interesting that of the 8 patients 5 were air crew technicians of various kinds, whose work took them into the cramped quarters of planes, where tall long-legged persons must assume awkward positions. This is a point worth remembering in choice of occupation.

Two of our 8 patients showed a dissociated form of paralysis, with motor but no sensory involvement. This type of disturbance following experimental compression of peripheral nerves has been described by Denny-Brown and Brenner,[15] who believe that the effect of pressure on a nerve is "due entirely to ischemia." When a mixed nerve is subjected to pressure, as noted by Fulton,[16] it is the motor fibers, which are the fibers of largest diameter, which are affected first, since these are most subject both to distortion and to deprivation of oxygen. In our cases ischemia of the nerve occurred because of direct pressure between the bony jaws of the vise as described and also, as in the case of the kneeling and squatting postures, by stretch in the long

13. Kruyk, K.: Peroneal Paralysis After Administration of Sulfapyridine (Sulfanilamide Derivative) in Child with Meningococcic Meningitis, Kinderärztl. Praxis **11**: 288-290 (Sept.) 1940.

14. Roger, H.; Schachter, M., and Fournier, A.: Sciaticas After Intragluteal Injections of Bismuth; Case of Paralysis of External Popliteal Branch of Sciatic Nerve, Medicina, Madrid **9**: 172-178 (March) 1941.

15. Denny-Brown, D., and Brenner, C.: Lesion in Peripheral Nerve Resulting from Compression by Spring Clip, Arch. Neurol. & Psychiat. **52**: 1-19 (July) 1944.

16. Fulton, J. F.: Physiology of the Nervous System, ed. 2, London, Oxford University Press, 1943, p. 26.

axis, which would tend to obliterate the vascular supply, which consists of extensive longitudinal anastomoses of vessels.[17]

Four of our patients were referred for consultation because the peroneal palsy was of obscure causation. In 1 case suspicion of disease of the spinal cord led to extensive investigation and almost to needless laminectomy, while in 2 others functional diagnoses were made and psychotherapy given for long periods prior to accurate diagnosis. We believe that if the causal factors demonstrated in the reported cases are kept in mind in considering obscure cases of peroneal nerve palsy, extensive investigations and perhaps even unnecessary laminectomies can be avoided.

A few final words in regard to therapy are in order. By prompt recognition and removal of the causal factors in a case of peroneal palsy due to crossing the legs, one can prevent serious neural damage. Some of our patients even while discussing their condition continued to assume the causative traumatic position. For these patients the deleterious effect of this seemingly innocent habit must be repeatedly stressed. Mechanical support of the foot, radiant heat, galvanism, and adequate nutrition with large doses of thiamine chloride were utilized. The therapeutic results were good.

SUMMARY AND CONCLUSION

Eight cases are reported of unilateral peroneal palsy occurring in healthy military personnel.

A common causal factor present in all 8 cases was the chronic habit of sitting with the legs crossed, which is shown to result, in persons of asthenic habitus, in a compression neuritis of the common peroneal nerve of the uppermost leg. This may either result in symptoms or may merely sensitize the nerve to other causal agents.

Another important causal factor in the reported cases was the assumption of various occupational positions incident to military duties and traumatic to the common peroneal nerve. The reported cases were mostly in air crew technicians.

These factors should be considered in all cases of unilateral peroneal palsy of apparently obscure causation.

17. Adams, W. E.: The Blood Supply of Nerves: I. Historical Review, J. Anat. **76**: 323-341 (July) 1942.

Humoral Transmission of Vagal and Accelerator Effects.—Some few years ago Loewi performed a series of experiments which showed decisively that cardiac inhibition resulting from vagal stimulation is due to the liberation of a chemical substance possessing an action similar to that of acetylcholine. It was also shown that the augmentation and increase in heart rate which follow stimulation of the accelerators are due to the action of an adrenalin-like substance. His results have been confirmed by others. . . . It was later demonstrated by Loewi that the heart muscle contained an enzyme—cholinesterase—which rapidly hydrolyzed the ester after its liberation into the relatively inactive choline and acetic acid and so limited the duration of its action. The action of this esterase is inhibited by physostigmine (eserine). The effect of the latter drug in inhibiting the heart depends solely on this action. That is, it prevents the hydrolysis of the vagus substance, which therefore continues to exert its effect. . . . The known materials in the circulating blood which influence the action of the heart are (1) the mineral constituents calcium, potassium and sodium, (2) adrenalin, (3) acid metabolites—carbon dioxide and lactic acid—and (4) oxygen.—Best, Charles Herbert, and Taylor, Norman Burke: The Physiological Basis of Medical Practice, Baltimore, Williams and Wilkins Company, 1945, page 211.

Special Article

HISTORY OF THE AMERICAN MEDICAL ASSOCIATION

MORRIS FISHBEIN, M.D.
Editor, Journal of the American Medical Association and Hygeia, the Health Magazine
Chicago

(Continued from page 691)

(NOTE.—*Following is the nineteenth chapter of a history of the American Medical Association, in process of development for publication in connection with the celebration of the Centennial of the American Medical Association in Atlantic City in June 1947.*

The general account of the history of the Association will be followed by individual histories of the various councils, bureaus, publications and other activities of the Association. The general account is written by the editor of THE JOURNAL. *Each of the other historical contributions will be by a member of the individual council, bureau or agency responsible and now associated with it or directly related to its work. Included will be photographs, signatures and a brief biography of each of the hundred presidents of the American Medical Association. This feature has been prepared by Dr. Walter L. Bierring.*

It will be impossible to publish all of the material in THE JOURNAL. *The complete work will be published in book form. It is hoped to have it available by the time of the annual session.*—ED.)

CHAPTER 19. *The Medical Trust and Oligarchy?*

1910-1914

1910

ST. LOUIS

AN AUTOMOBILE NUMBER

By 1910 the motor car had become so definitely an important factor in the practice of medicine that THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION issued its first automobile number. The section of THE JOURNAL devoted to this purpose appeared in the issue for April 9, 1910; it was entitled "The Choice and Care of an Automobile." It is, in the light of thirty-seven years of subsequent progress with this important appurtenance of medical practice, one of the most amazing collections of information in world history. There are many pictures of the vehicles of that day and some fascinating records of personal experiences of physicians with their vehicles. One section is devoted wholly to the motorcycle, with some debate as to whether or not doctors would do better with motorcycles than with automobiles. One article defends the gasoline propelled vehicle running on railroad tracks. The chapter on the business office pictures some of the advertisements.

THE MEDICAL TRUST?

During this year of the presidency of Dr. William H. Welch came the first organized attack on the American Medical Association as a medical trust. The proprietary medical interests had been so seriously damaged by the exposés which were being regularly published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION that they established an agency known as the National League of Medical Freedom. This organization was designed to defeat the Owen

bill for the creation of a national department of health but more particularly to discredit and disrupt the American Medical Association. Its attacks centered on the editor of THE JOURNAL, Dr. George H. Simmons. Detectives were employed to search out his past history, to follow him day by day and to muster public opinion against him. Among the leaders in these attacks were such names, now in excellent repute, as those of Dr. Abbott of the Abbott Laboratories and Mr. Post, inventor of the Post products, out of which has come the great corporation known as General Foods.

The attacks were bitter and vicious; full-page advertisements were purchased in newspapers throughout the nation; it became necessary for the editor of THE JOURNAL to answer them personally and publicly. This he did with a systematic analysis of the nature of the attacks and the powers behind them that carried conviction.

THE BOARD OF TRUSTEES

Incidentally for the first time THE JOURNAL published the minutes of an interim meeting of the Board of Trustees, so that the members of the Association might keep abreast of the increasing activities of this most powerful body in the affairs of the Association. By this time the multiple affairs of the Association had developed so greatly that Dr. M. L. Harris was drafted to prepare a form for presentation of the report of the Board of Trustees annually. This form was adopted and has been followed since that time.

THE AMERICAN JOURNAL OF DISEASES OF CHILDREN

The success of the American Medical Association with the publication of the ARCHIVES OF INTERNAL MEDICINE led to petitions for the publication of a journal devoted to pediatrics, presented by a committee consisting of Drs. Isaac Abt and F. S. Churchill. The Board of Trustees established a committee including such distinguished names as those of Drs. Abraham Jacobi, L. Emmett Holt and J. P. C. Griffith to investigate the need for such a publication.

A PERIODICAL ON PUBLIC HEALTH

From the Section on Preventive Medicine and Public Health and the Bureau of Medical Legislation came a request for publication by the American Medical Association of a periodical devoted to public health, for the establishment of scholarships in the field of preventive medicine and for similar purposes. It was proposed also that there be established a council to deal with problems of health and preventive medicine and to rate the public health work of the individual states. The council was to be called the Council on Legislation, Organization and Publicity. From a number of leading surgeons of the United States came a request to publish a periodical devoted to surgery; a committee was established to look into this subject.

When the President of the Association, Dr. William C. Gorgas, distinguished sanitarian of the Panama Canal, made his retiring address to the House of Delagates he noted that some question had been raised as to the right of the President to fill vacancies in standing committees that occurred in interims between meetings of the House of Delegates. The rapid growth of the American Medical Association had resulted in the establishment of too many committees and boards, and there was a tendency to take up new work without completing some of the projects already in hand. Dr. Gorgas was forced to take cognizance that the Association had made bitter enemies of the people engaged in the "patent" medicine business and, "as they command large capital, they are at present making a serious organized fight against us. This is the most altruistic part of our activity for the benefit of others or for the members of the Association."

THE SECRETARYSHIP

In presenting his report to the House of Delegates, Dr. George H. Simmons gave a brief account of his work as secretary of the Association. As far back as 1901 he had wanted to relinquish the position of secretary. In 1904 he suggested again that he resign the secretaryship, but the Board of Trustees advised against this. It had recommended the employment of an assistant to the secretary whose duty it would be to look after the details of that work. The position was filled by Dr. Frederick R. Green, who accepted it and who assumed in 1905 the duties of assistant to the general secretary. Dr. Simmons stated also that he had finally decided that he would not care further to be the secretary of the Association and he now definitely requested the election of a new secretary. He said:

> I realize that it is not usual to refuse a thing, especially an elective office, before it is offered. I think it better, however, to make the announcement now, so that there may be ample time for you to consider carefully whom you shall select for the position.

"For eleven consecutive years," he continued, "I have been unanimously elected general secretary, twice at the general meeting, before the reorganization, and nine times by the House of Delegates." The reference committee recommended to the House of Delegates that the desire of Dr. Simmons be respected, but it paid testimony to his work in a few well chosen words:

> Dr. Simmons needs no assurance as to the temper and position of this body concerning him personally and officially. It always has stood, and stands today, a solid wall behind him and has no words to express fully its high appreciation of his efficient and faithful service.

The committee recommended that his wish be granted

> in order that his great ability may be exclusively devoted to the duties of editor of THE JOURNAL OF THE AMERICAN MEDICAL ASOCIATION—the best medical journal in existence.

When the Board of Trustees made its report, the statement was read by Dr. M. L. Harris, chairman, who presented a vast amount of material in an exceedingly concise and direct form. He listed the special projects which concerned the organization and he indicated that all the work had been reflected from time to time in THE JOURNAL. Especially, however, did he commend the work of the Council on Pharmacy and Chemistry.

THE PUBLIC HEALTH EDUCATION COMMITTEE OF WOMEN

The Board of Trustees had been greatly concerned over the appointment under somewhat doubtful auspices of a special committee known as the Public Health Education Committee of Women. Apparently a resolution had been adopted by the House of Delegates on

June 10, 1909, offered by Dr. Charles A. L. Reed, requesting the women physicians of the American Medical Association to take the initiative individually in their respective associations, in the organization of educational committees to act through women's clubs, mothers' associations and other similar bodies for the dissemination of accurate information touching these subjects among the people. They were requested to submit to the House of Delegates a yearly report of such work and elect from among their numbers a committee to take charge of it. The Board of Trustees asked the lawyers for the Association to find out whether or not such a resolution would warrant the women physicians of the American Medical Association in appointing such a committee without having it nominated by the President and further whether or not the Board of Trustees would be warranted in paying expenses already incurred by that committee. The attorneys said that there was no provision for any such action in the Constitution and By-Laws and that therefore such a committee had no legal standing as a committee of the Association. Then came a report from the women's committee, which was read by Drs. Rosalie Slaughter Morton and Mary Sutton Macy. These ladies submitted an extensive report indicating how hard they had been working; apparently they requested some funds as reimbursement for some of their activities. Now the chairman of the Board of Trustees called attention to the misunderstanding; he indicated that it was proposed to establish a council for public health education and that the work of this women's committee would probably come under a secretary's bureau for the purpose.

MEDICAL LEGISLATION

At this meeting of the House of Delegates the Committee on Medical Legislation, headed by C. A. L. Reed, made an extensive report on legislation before the Congress and before the individual states. The committee indicated the great importance of a department of publicity to inform the public on legislation affecting the practice of medicine. At this time Dr. C. A. L. Reed tendered his resignation with an extensive valedictory message based on his eight years of experience. A few wise observations in this little known statement merit thought in modern times:

> The time has passed when any organization, however altruistic its purposes, can throw the whole burden of its duties on a single person and expect to pay the obligation by the honor thus conferred.
>
> For any member of the national organization, not a resident of a given state, to appear before the legislature of that state either for or against a given measure, would, under ordinary circumstances, tend to prejudice the cause at issue before the legislators.
>
> It is hardly worth while to work seventeen years for a food and drugs act if its power to protect the people is destroyed by executive interpretation in the short space of seventeen months.

The Board of Public Instruction on Medical Subjects, which was eventually to be merged into the Council on Health and Public Instruction, had published two popular articles during the year—one on the venereal peril and the other on typhoid. The committee on ophthalmia neonatorum was making great progress toward the acceptance of its proposals by the individual states.

DAVIS MEMORIAL

The new committee on the Davis memorial was having just about the same amount of trouble in getting funds for that purpose as had the committee on the Rush memorial in the last quarter century. Only six states had contributed to the fund, and the total on hand was only a little over $700.

DEFENSE OF MEDICAL RESEARCH

The Committee on Defense of Medical Research had developed some excellent papers on animal experimentation, among them contributions by E. L. Trudeau on tuberculosis, James Ewing on cancer, James R. Angell on the ethics of animal experimentation and W. W. Keen on surgery.

Again the Constitution and By-Laws were completely revised and new arrangements made for a constitution and by-laws for the individual states.

ANESTHESIA

A committee on anesthesia had been developed to conduct extensive studies in this field. It concluded that ether was the anesthetic of choice for the general practitioner and for all anesthetists not especially skilled.

A NEW BADGE

In 1910 the Association discarded its insigne which included a red cross and adopted the emblem which is still used. In developing the design the committee suggested that it convey a definite meaning both in color and in form. Scarlet and gold had been considered medical colors since ancient times; the true ancestral symbol of the healing art was the knotty rod and serpent of Aesculapius. One member of the committee wanted an eagle on the emblem, but other members were opposed to the eagle and it was omitted.

NEW SECTIONS

Petitions came for a new section on physical forces in medicine and for a new section on urology and venereal diseases.

The House of Delegates endorsed the statistical and editorial work of THE JOURNAL leading toward control of Fourth of July fatalities and casualties.

COUNCIL ON LEGISLATION

Now came the organization of the Council on Legislation, Health and Publicity, to consist of five members elected by the House of Delegates on nomination by the President.

SECTION ON GENITOURINARY DISEASES

The committee recommended the establishment of a section on genitourinary diseases; the first officers appointed for that section were Drs. W. T. Belfield, Chicago, chairman; James Pederson, New York, vice chairman, and Dr. Hugh Young, Baltimore, secretary. The reference committe did not believe, however, that the time was opportune for the establishment of a section on physical forces in medicine or for a section on hospitals. These came later.

RATING THE MEDICAL COLLEGES

The House of Delegates authorized publicity for the rating of medical colleges in the United States, and the first rating of class A, B and C colleges was published. This publication was to be of vital significance in eliminating the weaker medical schools and in

raising the standards of all the medical schools in the United States.

Again there were calls for elimination of the office of coroner.

DEATH OF RICKETTS

In this year Dr. Howard Taylor Ricketts died while undertaking investigations into typhus in Mexico; the House of Delegates adopted a memorial in recognition of his death, and THE JOURNAL published important editorials on the significance of his work.

The women's committee made an extensive report on its activities. This was referred to the Reference Committee on Hygiene and Public Health.

SIMMONS REELECTED SECRETARY

When the time came for the election of secretary, a movement began to force Dr. George H. Simmons to retain the office. The movement was successful and he was unanimously elected.

NEW SPECIAL PERIODICALS

As the session ended, the Board of Trustees was encouraged by the House of Delegates to proceed with the publication of a journal of pediatrics and of surgery whenever it should think desirable. Some members feared that the publication of these special periodicals would involve losses to the Association, although there was unanimous agreement on the desirability of good scientific periodicals for the encouragement of the specialties. In discussion, Dr. George H. Simmons made it clear that the one purpose of these special periodicals was advancement of the specialties concerned. He said "I believe that we can do nothing that will help scientific medicine in this country so much as the publication of high class scientific journals that private publishers cannot publish, even though it may be done at a loss."

THE BATTLE WITH THE PROPRIETARIES

Behind the scenes were rumblings and turmoil that reflected the activities of the "patent" medicine interests which were trying to disrupt the Association. A communication had come from Dr. G. Frank Lydston insisting that the American Medical Association had no right to meet or to elect trustees or officers outside the state of Illinois. He hinted at procedures by the state's attorney unless his demand be followed. The letter from Dr. Lydston was laid on the table.

A resolution had been developed that there be further modification of the Constitution and By-Laws to make members of county and state medical societies members *ipso facto* of the American Medical Association, and the Board of Trustees was requested to draft a suitable amendment for the purpose. The final action taken with regard to the women's educational committee was to refuse to make any grants for the payment of work of that committee. It was also decided that every committee, council, officer or bureau entitled to funds submit a detailed budget before making expenditures.

1911

LOS ANGELES

The payroll of the American Medical Association as 1911 came on the scene included 23 salaried monthly officers and about 100 other employees in the clerical and mechanical departments. The average wages of printers varied from $20 to $30 a week and of the clerical employees about $15 a week.

By this time the Association was becoming a little touchy on the work of Dr. J. N. McCormack, who was receiving a salary of $6,000 a year for his organization and legislative work. Officially he was employed by the Council on Health and Public Instruction and not by the Board of Trustees. Dr. Alexander R. Craig had been employed as assistant to the secretary. A motion was passed that a periodical to be known as the American Archives of Surgery be published beginning with 1911.

ADDRESS BY DR. WELCH

When the Association convened in Los Angeles in 1911 Dr. William H. Welch made an address to the House of Delegates, contrasting the effectiveness of its actions with those of the general meeting in a previous era. Because of the great importance of actions taken by the House of Delegates he emphasized the desirability of selecting the most competent possible representatives for membership in this body.

IMPROVEMENT IN ORGANIZATION

In further development of the compact and efficient organization that he sought for the American Medical Association, Dr. George H. Simmons recommended a technic for transfer of membership when a physician changed his location. He suggested also a reorganization of the Judicial Council as a permanent body authorized to hold meetings when necessary to consider such questions as the secret division of fees, contract practice and advertising.

During the year the Association had moved into its new building.

COUNCIL ON HEALTH AND PUBLIC INSTRUCTION

The first report of the Council on Health and Public Instruction was made by its chairman, Dr. Henry B. Favill of Chicago. This distinguished body included, in addition, Drs. Walter B. Cannon, J. N. McCormack, Henry M. Bracken, W. C. Woodward and a full time employee, Dr. Frederick R. Green, as secretary. Special bureaus devoted to legislation, organization, publicity, protection of medical research and public health had been established under the Council. Under its auspices addresses had been made throughout the nation, publications had been devoted to the defense of research, legislation had been studied in the national Congress and in the states, bulletins had been issued to the press on a great variety of subjects, and pamphlets had been issued through many state boards of health and of licensure. For instance, the special committee on public health education announced that over 2,800 lectures had been given to more than 230,000 people. Subcommittees considered in addition such subjects as visual standards for pilots, the prevention of blindness due to ophthalmia neonatorum, amblyopia from methyl alcohol and trachoma. There were reports on blindness due to industrial accidents and faulty eye hygiene.

THE JUDICIAL COUNCIL

The reorganization of the Judicial Council was recommended in some amendments to the By-Laws.

Once the Judicial Council was officially established, the President appointed to its membership Dr. Frank Billings, Illinois; James E. Moore, Minnesota; A. B. Cooke, Tennessee; Alexander Lambert, New York, and Hubert Work, Colorado.

MEDICAL EDUCATION

The Council on Medical Education reported a reduction in medical colleges from 166 in 1904 to 129 in 1911. There were still, however, vast fields to conquer.

AMENDING THE PURE FOOD LAW

The Association was urging the Congress to amend the Pure Food and Drug Law so as to prevent false statements in regard to the results to be expected from the use of medicinal agents.

The House of Delegates urged the Council on Medical Education to inform the public concerning the status of medical education and the quality of medical colleges, utilizing the forces of the Council on Health and Public Instruction for that purpose.

For the first time the Council on Medical Education recommended the desirability of a five year instruction program, one year of which was to be spent as an intern. The Council urged that medical colleges be requested to adopt such an internship as rapidly as possible.

SECTION ON HOSPITALS

A proposal came for the establishment of a scientific section on hospitals.

ALBERT ABRAMS EMERGES

While the Board of Trustees was meeting in Los Angeles, it received a remarkable letter from Dr. Albert Abrams of San Francisco in regard to a review of a book printed by him on the subject of spondylotherapy. The book had been somewhat unfavorably reviewed in THE JOURNAL, and the editor had refused the advertising pages of THE JOURNAL to the book. Dr. Albert Abrams threatened to bring suit unless the Board of Trustees reversed the action of the editor. The Board of Trustees approved the action of the editor and of the chairman of the board, Dr. M. L. Harris, in refusing space to Dr. Abrams. The subsequent career of Dr. Albert Abrams in the field of electronic medicine, an unusual form of quackery, indicated the wisdom of this early action in recognizing that he was about to depart from honest medicine into the field of fraud and charlatanism.

THE PHARMACOPEIA

Through its representatives to the U. S. Pharmacopeial Convention the Board of Trustees was initiating action to remove from the U. S. Pharmacopeia preparations of doubtful value. To this meeting of the Board of Trustees came a request from the Council on Pharmacy and Chemistry for funds to be devoted to research in therapy; the Board of Trustees gave its full support to this proposal.

ARCHIVES OF SURGERY

A special committee had met in New York to consider the publication of the ARCHIVES OF SURGERY and was proceeding with its plans, but it felt that a far more elaborate publication was needed than was then contemplated.

THE N. S. DAVIS HALL

As a memorial to Dr. Nathan Smith Davis, the Board of Trustees during this year established the library in the Association building as the N. S. Davis Hall and directed that a bronze bust of Davis be placed therein, the expense of this bronze bust to be paid for out of the Davis fund.

DR. CRAIG MADE SECRETARY

Dr. Alexander R. Craig had become secretary of the Association, and the Board of Trustees fixed his salary.

1912

ATLANTIC CITY

The Association had grown so large and the number of its sections so numerous that it now became necessary to restrict the amount of material published. Up to this time every paper read in a section and approved by the executive committee of the section was published in THE JOURNAL. Moreover, the discussions were lengthy and often of little merit. The Board of Trustees now suggested that discussions published in THE JOURNAL be limited to 500 words and that every possible effort be made to get the executive committees of the sections to limit the length of the papers and to withhold their approval from those that did not represent high quality.

ARGUMENT OVER A SURGICAL PUBLICATION

Now came a petition from 100 of the most prominent surgeons of the country requesting the Board of Trustees to proceed with the publication of the journal of surgery. At the same time, however, came another letter signed by Dr. Lewis S. Pilcher, editor of the *Annals of Surgery,* and Dr. Franklin H. Martin, editor of *Surgery, Gynecology and Obstetrics,* earnestly protesting the establishment by the Association of such a journal. They feared the publication of such a periodical, saying it "would practically put us out of business and leave the field of independent surgical journalism of this country to be occupied solely by journals of a less high scientific character." They said further "We believe it more in keeping with the high purpose of the American Medical Association to foster and forward the honest efforts of its members in the line of medical progress rather than to cripple or destroy them by unnecessary competition."

After hearing these two communications, the Board recommended that a surgical journal be developed along lines similar to those established for the ARCHIVES OF INTERNAL MEDICINE and the AMERICAN JOURNAL OF DISEASES OF CHILDREN.

DR. JOHN B. MURPHY MAKES NEW PROPOSALS

The meeting of the House of Delegates in 1912 brought forth a long address to the House by the President, Dr. John B. Murphy, dealing wholly with the work of the organization and making some revolutionary proposals as to its conduct. These included the breaking up of the Council on Health and Public Instruction so that the functions in regard to medical legislation would go to another council. He wished also a council on organization to be concerned with membership of the Association. He recognized the quality of THE JOURNAL but thought it ought to do much more in the way of answering inquiries and giving information to the medical profession. He made a brilliant attack on fee splitting and felt that the Principles of Ethics should be much more definite in its condemnation of this dishonest practice. He urged clinics in connection with the meetings of the Association. And he desired particularly that the House of Delegates check the actions of the Board of Trustees, councils, committees and officers to make certain that they were carrying out the requests of the House. He wished to have the President, the secretary and the editor made ex officio members of the Board of Trustees without voting power, and he urged also that provision be made to give to the House of Delegates complete information as to the action taken by the Board. This action was taken by the House of Delegates and has not been subsequently changed.

NEW COMMITTEES

In the meantime a number of committees appointed through actions of the House of Delegates were studying problems of great importance to the advancement of American medical science. For instance there was a committee to represent the American Medical Association at the third National Conservation Congress. There was a committee on nomenclature and classification of diseases which was conducting systematic studies on this subject. Another committee was concerned with standards in the field of anesthesia. Of this committee Dr. Yandell Henderson was chairman, and at this session of the House of Delegates Dr. Thomas S. Cullen, Baltimore, was appointed to the Committee on Anesthesia. Another committee had been established to consider the completion of the Panama Canal.

The Board of Trustees was able to announce the first publication of its book "Nostrums and Quackery," enlightening the public on frauds and quackeries; more than 10,000 copies had been promptly exhausted.

The Judicial Council, under Dr. Frank Billings as chairman, presented an extensive list of rules for its own procedures. It recommended revisions of the Constitution and By-Laws to improve still further ethical standards of the profession. These amendments concerned particularly the patenting of drugs and instruments, the maintenance of membership being made dependent on conduct in accord with the Principles of Ethics. The Council condemned the secret division of fees and the giving of commissions and urged amendments as well regarding contract practice.

NEW SECTION ON ORTHOPEDIC SURGERY

As evidence of the growth of scientific work in the Association there came a request for the establishment of a section on orthopedic surgery and another for a section on physical therapeutics. There had come previously a request for a section on proctology. The House of Delegates established the Section on Orthopedic Surgery but rejected sections on both physical therapeutics and proctology.

THE SCIENTIFIC EXHIBIT

The Scientific Exhibit was growing in quality and in the total number of exhibits, but it was feeling itself a stepchild in the assignment of space at the annual session, and the House of Delegates moved that it be given first choice of location in the exhibition hall.

A JOURNAL OF HEALTH AGAIN PROPOSED

The meeting of the Association of 1910 had heard a recommendation from the President of the Association for the publication of a journal of health. This had finally reached the status of a special committee under Dr. William A. Evans, Illinois, to investigate the possibility of publishing a health journal. The committee urged the Board of Trustees to establish a popular priced health journal. The recommendation was referred to the Board of Trustees of the Association by the House of Delegates. The board replied to the House that, if the House wanted the publication, the board would proceed. Not until 1923 was this objective accomplished.

A JOURNAL FOR GENERAL PRACTITIONERS

In his address to the Association Dr. William H. Welch had suggested the desirability of publishing a small medical journal, because THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION was too advanced and too technical for many practitioners. There were at that time 278 medical journals published in this country, many disgraceful to the profession that supported them. The report of the special committee to consider this matter was prepared by Dr. J. N. McCormack. He believed that the best method for meeting the objective would be encouragement by the American Medical Association to the state medical journals and aid to all periodicals conducted in accordance with reasonable rules as to plain honesty in their advertising and reading pages. The committee felt also that the American Medical Association might well aid these smaller publications through providing them with abstracts of the more scientific articles that appeared in the technical publications, of which there were so many in the field of medical science. As a result of these considerations THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION undertook at that time the publication of a weekly bulletin of abstracts of important medical articles. This bulletin was sent regularly to smaller medical publications. By the use of these abstracts in the smaller medical journals the advancement of medical science was regularly extended to great numbers of physicians who would otherwise never have come in contact with medical progress.

COUNCIL ON HEALTH AND PUBLIC INSTRUCTION

Again one of the most extensive reports was that of the Council on Health and Public Instruction. This body was clearly attempting functions which, in the light of present day practices, would be grouped under the heading of public relations. It conceived its principal commission to be the development of public confidence in the purposes and work of the American Medical Association and of the medical profession. It conducted a press bureau and a speakers' bureau. It compiled a handbook for speakers. It organized and developed a bureau of literature concerned with the publication of great numbers of bulletins and pamphlets. It distributed educational matter on frauds and nostrums and it enlightened the public on medical legislation. It encouraged membership in the American Medical Association, aided the campaign against the antivivisectionists, collected state laws related to health, offered prizes for the best cartoons on public health subjects and distributed a bulletin, published occasionally, to county and state medical societies regarding the work of the American Medical Association and of this council. The number of its committees was great. They included subjects as profound as resuscitation for electric shock. It had a special committee which cooperated with the National Education Association and a committee on medical expert testimony, on railroad sanitation, on vital statistics and on similar subjects. It participated with the Council on Medical Education in a joint annual conference on medical education and legislation, and all of its subcommittees, such as those on the prevention of blindness, visual standards for pilots, public health education among women, cooperation with the National Education Association and uniform regulation of membership, made special reports. Unfortunately the evolution of the work of the American Medical Association in succeeding years resulted in the lapsing of the work of this council, so that some years later it was discontinued by the House of Delegates and its various functions distributed among such agencies as HYGEIA, the Bureau of Investigation, the Bureau of Health Education, the Bureau of Medical Legislation and the Bureau of Exhibits. The special functions having to do with education of the public regarding medical legislation by

the use of a speakers' bureau and special publications in that field lapsed entirely until the creation of the Council on Medical Service and, most recently, of a Bureau of Public Relations.

By an action of the House of Delegates taken at this session, the courtesy of the floor of the House of Delegates was extended to the members of the various councils and particularly to the secretaries of these councils so that they might advise the House at any time concerning their work.

DR. J. A. WITHERSPOON MADE PRESIDENT

At the elections on the fourth day of the annual session Dr. J. A. Witherspoon of Nashville, Tennessee, was elected President unanimously.

PRESIDENT JACOBI'S ADDRESS

One of the suggestions made by President Jacobi in his annual address dealt with the desirability of reforestation of the United States as a means of preventing floods. This recommendation was referred to a reference committee of which Dr. Hubert Work of Colorado was chairman. That committee recommended that the American Medical Association urge the Congress of the United States and the individual states to take immediate steps in the direction of extensive reforestation of the country and thereby to protect the country in the future against the return of similar calamities. This recommendation was adopted. A good many years later Hubert Work became Secretary of the Interior in the cabinet of President Coolidge. But reforestation began to be taken seriously by our government many years later!

Unusual at this session was a valedictory address by Dr. Abraham Jacobi to the House of Delegates. Some of his remarks were received with great appreciation of his wit. For instance, he said:

> I want you to understand that I am not used to presiding over such a body. I have done the best I could under the circumstances and I have just followed my instincts and what I have seen in inferior places. I am not used to it, because this is a queer place. There is no second and third term where people learn to be disagreeable and make people's lives uncomfortable. So you must excuse me perhaps for not having made things more uncomfortable for you.

He urged particularly that the American Medical Association develop great strength in order to secure the establishment of a department of health in the cabinet. He concluded:

> You want to get home. What I wanted to say was this, that our main position in life should be to wake up our neighbors, particularly the general practitioners, that vast number of men all over the country, and see to it that they participate in public affairs.

During the session of the House of Delegates the Board of Trustees again considered the publication of a health journal but decided that this was much too serious a proposition to be undertaken suddenly. Dr. Simmons was requested to look into the matter. He was never especially desirous of undertaking such a publication and it was not actually begun until just previous to the end of his term as editor. The Board of Trustees referred to the Council on Health and Public Instruction the question of publishing a health journal, and that council said it was not yet ready to give any advice on the subject.

MEETING OF STATE SECRETARIES

A motion was made before the Board of Trustees to provide for an annual meeting of state secretaries at the time of the meeting of the Board of Trustees in October.

GUIDES FOR THE SCIENTIFIC EXHIBIT

The Scientific Exhibit had grown so greatly that the board approved the appointment of guides, who were paid $5 a day, to show doctors around the exhibit.

NEW BUTTONS FOR OLD ONES

A decision was finally made that the button carry the letters A. M. A. and not the entire name of the Association. Then it became necessary to trade in the old buttons for the new buttons, and that had to be settled.

The attorneys of the Association rejected the proposal that the President, secretary and editor of the Association should be members of the Board of Trustees without the right to vote as being a violation of the corporation law of Illinois.

1913

MINNEAPOLIS

The year 1913 was to witness some fundamental changes in the conduct of the work of the American Medical Association resulting in part from the loss of personnel and, secondly, from evolutionary progress. The amount of material coming to THE JOURNAL increased so greatly that the Board of Trustees recommended to the House of Delegates that no more sections be created and, second, that no more than thirty papers be read in any one section. Furthermore, a special approval slip, to be used by the executive committees of the individual sections, was developed so that the executive committee could sign its endorsements for publication. It was felt also that the changing of the secretaries year by year was inadvisable and that they ought to have more permanent office. Finally it was suggested that the secretaries of the sections be assembled at least once each year at a conference and that their expenses be paid for such a conference.

BIRTH OF THE COOPERATIVE ADVERTISING BUREAU

Out of the recommendations that came from the J. N. McCormack committee came a motion to create a bureau of advertising to aid the periodicals that wished to conduct themselves in accord with the principles of the councils of the American Medical Association. The editor and general manager, Dr. George H. Simmons, and the advertising manager, Mr. Will C. Braun, were requested to prepare an outline for such a bureau and to report to the Board of Trustees at a later date.

AN OTOLARYNGOLOGIC JOURNAL

Now came also a request for the American Medical Association to undertake the publication of a periodical in the field of otolaryngology. The disputes that arose over the publication of a surgical journal had now completely blocked progress in that direction, and it was moved that a special committee be set up to study the whole question.

At the end of the February meeting of the Board of Trustees the board authorized Dr. George H. Simmons

to take a vacation of ten or twelve weeks during the year. He postponed the vacation until the period following the annual session which was held in 1913 in Minneapolis.

MORE ADVICE FROM DR. JACOBI

The President of the Association, Dr. Abraham Jacobi, had devoted his official address to the question of the prevention of infant mortality. To the House of Delegates when it opened its meeting in 1913 he spoke more definitely of the work of the organization. He felt that the sections could do a better job if they had fewer papers and if the papers could be gathered in symposiums which would draw together the opinions of leaders and, he concluded, "We write too much and debate too little." He urged that the secretaries of the sections be prominent scientific men in the profession and that their term of office be lengthened. He felt that the President of the Association did not have enough to do and that aside from sitting with the Board of Trustees he might well sit with other councils and other agencies of the Association. This suggestion met with great approval by the House of Delegates, which adopted an action to the effect that the President of the Association be asked to attend all meetings of the councils, bureaus and similar bodies in the Association. Dr. Jacobi was moved by the fact that those who attended the House of Delegates simply lost touch with the scientific work of the organization, and he felt that something might be gained if the House would meet for three days previous to the time of the annual session. As President he had received some letters complaining about the "oligarchy of Chicago and the autocracy of the House of Delegates." He said "If my angry correspondents would pray less and watch more, and would interest themselves in their county and state societies and in the election of their various delegates, they would have less reason to complain of what some of them term the oligarchy of Chicago and the autocracy of the House of Delegates." He was particularly annoyed by the fact that he had received some "epistles of rebuke and expostulation" and that he had "to put up with the wiseacres who were members of no societies and even with those who were not yet citizens of the country." And, he said finally, "If you had the benefit of an Ellis Island of your own you would have fewer undesirable citizens of the profession, fewer backbiters, fewer calumniators of persons and aims, fewer enemies of the profession and fewer conspirators."

By this time the American Medical Association had reached a membership of 34,283, but THE JOURNAL had become the primary force in securing membership in the Association.

The recommendations of the Board of Trustees relative to the management of the sections met with a fine welcome from the House of Delegates, which supported the board fully in lessening the number of papers, extending the terms of the secretaries and urging more careful consideration by the executive committees of the sections of the papers that came to them.

The board announced that it was setting up a cooperative medical advertising bureau in the Association headquarters and that it had established a conference of state secretaries. All members of the Association had received copies of the Principles of Medical Ethics, and the publications of the Association were doing very well indeed.

FEE SPLITTING

In an endeavor to determine the status of fee splitting, the Judicial Council had sent a questionnaire to prominent members of the profession throughout the nation. It found great variations throughout the country in this practice. The full report on fee splitting is an extraordinarily interesting document. After discussing every possible phase of the subject, the Judicial Council adopted a resolution to the effect that any member of the American Medical Association found guilty of fee splitting—of giving or receiving division of fees—should no longer be a member of the Association. It also recommended definite action toward the elimination of the abuse of so-called lodge practice. As a part of its report to the House of Delegates at this time the Judicial Council also suggested the desirability of change in the procedure of the House of Delegates by the election of a speaker who would be responsible for conduct of the affairs of the House of Delegates. The chairman of the Judicial Council which brought in this report was Dr. Alexander Lambert. The Judicial Council included in its membership Drs. A. B. Cooke, James E. Moore, Hubert Work, George W. Guthrie and the secretary of the American Medical Association.

The report of the Judicial Council went to the House of Delegates, which decided to consider the question of speaker by the entire house sitting as a committee of the whole. The House considered the matter of the speaker as a committee of the whole, but there is nothing said in the minutes as to what it did. The other recommendations of the Judicial Council relating to fee splitting were adopted.

The Council on Health and Public Instruction presented again an extensive report of its many activities, which had proceeded along the lines laid down in previous years, and announced a similar program for the year to come. It proposed the establishment of a legislative and medicolegal bureau at the headquarters of the American Medical Association. One of the proposals was a conference of the executive officers of public health organizations to discuss mutual cooperation and proper division of the field. The Council had worked out carefully a long list of organizations interested in public health to which an invitation for a conference was sent. That conference had been held at the American Association for Labor Legislation on April 12 and officers representing thirty-nine national organizations were present. As a result of that conference a committee of fifteen was established to consider the entire question of public health activities and the ways in which they could be improved and to report its findings with definite recommendations at a subsequent meeting of the conference.

Among the men on this committee was Dr. S. M. Gunn, whose name appeared at the meeting in 1946 as a maker of the Gunn-Platt report in an effort to coordinate philanthropic organizations related to health and to standardize in some way health activities.

Conspicuous in the activities of this council were its contacts with the government. Much of its work during the year had been devoted to a method of bringing about harmonious cooperation between the Council itself and the special committee on national legislation which had been established by the House of Delegates

and the committee of 100, which was concerned with public health problems. It is interesting to observe seven points in the program of this group:

First: Appoint a committee to see President Wilson, tomorrow, May 6, at 10:45, and communicate to him the results of our conference and request him to decide on an administration policy concerning public health legislation.

Second: Recommend to President Wilson that he definitely advocate the establishment of a Department of Health.

Third: That he cooperate with Representative Foster in attempting to secure a Committee on Public Health in the House of Representatives during the present special session.

Fourth: That he call a White House conference on Public Health next fall somewhat similar to the Governors' Conference on Conservation called by President Roosevelt. The object of this conference is to promote the success of the President's policies and if necessary to aid in framing these policies.

Fifth: That at the next regular session the President should send a special message favoring public health legislation or else emphasize it in his regular annual message.

Sixth: That the President should select for the first assistant Secretary of the Treasury some one interested in public health.

Seventh: That in the next regular session we should support the President in securing such public health legislation as he decides to recommend.

The extensive reports of this council deserve to be read in detail by every one who is concerned today with the whole problem of public relations for American medicine.

EDUCATION

The Council on Medical Education continued to make its routine reports of progress toward further standardization of medical education.

The American Medical Association was functioning in relationship to the American Red Cross through a liaison committee.

An attempt had been made to arrange a joint meeting between the American Medical Association and the British Medical Association, but some of the members of the committee had died and the matter was still under consideration.

Already the committee which was working on the establishment of a national department of health was having a little trouble by the fact that the U. S. Public Health Service was trying to divert that activity into an expansion of the U. S. Public Health Service. The committee remarked

We, the undersigned, cannot see any virtue in pretending to be for a Department of Health directly and then covertly attempting to get it by an expansion of the great Public Health Service.

The committee that signed that communication included Drs. J. B. Murphy, J. N. Hurty, W. C. Woodward and W. A. Evans.

The House of Delegates had at this time to clarify the functions of the Committee on Health and Public Instruction and the national department of health. It did not agree with the committee that the Association maintain a paid lobbyist in Washington. It did not concur in the idea that the American Medical Association join with other organizations of a purely commercial nature to maintain a lobby in Washington. This report, which was extensive and which was made by a committee consisting of Drs. E. J. Goodwin, chairman, A. R. Mitchell and Thomas S. Cullen, was adopted. There was much debate, during which the House of Delegates went into executive session. The minutes of the executive session are not available, but at the end the House of Delegates adopted a report placing the responsibility in the Council on Health and Public Instruction and recommending the discharge of the special committee on national public health legislation.

Out of the work of the Reference Committee on Amendments to the Constitution and By-Laws came an action which made it mandatory that a member present only one paper at any annual session.

DR. VICTOR VAUGHAN BECOMES PRESIDENT

At this meeting Dr. Victor Vaughan of Ann Arbor, Mich., was elected President of the American Medical Association. The House of Delegates had great pleasure in hearing an address by Mr. Samuel Hopkins Adams, who spoke on medical advertisements in the public press. The House of Delegates authorized the establishment of the Cooperative Medical Advertising Bureau. It created a new Section on Gastroenterology and Proctology and selected as its officers Drs. Joseph M. Mathews, Louisville, Ky., chairman; J. A. McMillan, Detroit, and A. J. Zobel, San Francisco, secretary.

The Board of Trustees at this session voted not to support a periodical on the ear, nose and throat because the time was not opportune.

DEATH OF E. E. HYDE

After the session ended, Dr. George H. Simmons departed for a trip abroad. During his absence Dr. E. E. Hyde, assistant to the editor, died suddenly of myelogenous leukemia. Following his death, Dr. Malcolm L. Harris, chairman of the Board of Trustees, served as editor until Dr. George H. Simmons returned.

At the meeting of the Board of Trustees in November 1913 Dr. A. R. Craig, secretary of the Association, presented a report in which he called to the attention of the board the loyalty of every one connected with the Association following the death of Dr. Hyde and during the absence of Dr. George H. Simmons. In the meantime Dr. George H. Simmons had secured the services of Dr. Morris Fishbein to take the place of Dr. Hyde. Dr. Fishbein had been recommended by Dr. Ludvig Hektoen and Dr. Frank Billings and had begun his work with the American Medical Association on Aug. 27, 1913.

The Board of Trustees now again took up the question of the Cooperative Medical Advertising Bureau and reaffirmed its original action in establishing this committee and making an appropriation for its work.

In creating the Section on Gastroenterology and Proctology, a motion had been made to the effect that the two existing societies in that field would disband. Apparently, however, these societies did not disband, and the secretary of the Association did not feel that he could create the section unless the societies did disband. Dr. Dwight H. Murray of Syracuse appealed to the Board of Trustees, which felt, however, that it could not go beyond the action of the House of Delegates.

Dr. G. Frank Lydston had carried to the courts his desire to force the American Medical Association to hold its meetings and elections in Illinois, so that the trustees authorized publication of the Lydston decision in THE JOURNAL under the authority of the Board of Trustees, to be signed by the secretary and chairman of the board.

1914

ATLANTIC CITY

Because the number of papers at the annual session had been reduced, the restriction of four pages to a section paper was modified now to permit six pages.

The headquarters office was permitted to expand into the old building which it had been renting to outside parties because the needs of the Association were continually growing.

Now began a battle over the rental and use of radium, which has continued until this date.

COMPULSORY SICKNESS INSURANCE LOOMS LARGE

In 1913 the American Medical Association began to be interested in the question of sickness insurance. The Council on Health and Public Instruction conceived the desirability of sending one of its employees, Dr. I. M. Rubinow, to Europe to study what was being done there in national health legislation. The Board of Trustees did not think the time was ripe to undertake such studies. An American Academy of Medicine had been formed, and the secretary of that group wanted the cooperation of the American Medical Association in studying medical sociology. This action was referred by the Board of Trustees to the Council on Health and Public Instruction.

At the meeting in Atlantic City the President of the Association, Dr. John A. Witherspoon, announced that he would not make any address because he had just got up from the sick bed.

SECTION TROUBLE

The secretary of the Association reported his troubles over the Section on Gastroenterology and Proctology. The majority of the members of the American Proctological Association were opposed to disbanding when interviewed and indicated that they were not in sympathy with the formation of the section. The Reference Committee on Sections and Section Work, chairman Dr. Hugh Cabot, recommended therefore that there be no Section on Gastroenterology and Proctology. It recommended the division of the sections into two groups—general and special—with the understanding that a member might read one paper before each of these two groups. It recommended finally a committee of five be appointed by the President and be charged with the investigation of the whole matter of sections and section work. The committee had been asked to create a section on hydrotherapy, but it did not feel it desirable to add any more sections.

BOARD OF TRUSTEES REPORT

The Board of Trustees began its report by saying that the past year had been distinguished by no unusual events in the Association. All the activities had been prosecuted with maximum interest to the medical profession. There was trouble because Arbuthnot Lane had recommended Russian mineral oil, and the Council on Pharmacy and Chemistry had found no difference between Russian mineral oil and the liquid petrolatum of the United States. A book had been published called Useful Drugs. Quacks were moving the nation into activity, and the national organization had established vigilance committees to work toward the elimination of frauds in medicine. A special department known as the propaganda department had been established in the headquarters of the organization under the leadership of Dr. Arthur J. Cramp.

The Council on Medical Education reported ten years of excellent progress. It was about to investigate proprietary graduate medical schools and it urged reorganization of the clinical departments of medical schools. A complete arrangement had been made for full cooperation with the American Red Cross.

The Council on Health and Public Instruction again defined the scope of its activities. It recommended, however, as a new activity a survey of public health activities of the federal government to determine exactly what the federal government is doing for public health. The speakers' bureau had sent speakers throughout the nation to cover a wide variety of subjects, which were carefully tabulated. The press bulletin and the bureau of literature had been continued. There was a complete survey of national and state legislation. Somewhat in advance of its time was the report on special activities. This report follows:

> The Council conceives one of its most important functions to be the cultivation, as the official representative of the Association, of friendly relations with other professional organizations and influential bodies. The problem before the Association is exactly that which confronts the individual; namely, the necessity of convincing those whom we would influence of our sincerity and good faith. In a word, the Association and the medical profession, like the individual, must acquire and maintain a reputation for breadth of mind and charity of spirit, as well as for ability and authority in its special field. If we have the confidence and cooperation of the public and if they recognize the honesty of our purpose and sincerity of our motives as a body, almost anything which we may propose will meet public approval. If, on the other hand, the public is suspicious of our motives and skeptical as to our disinterestedness, any proposition emanating from the organized medical profession, no matter how clearly for the public good, will be misunderstood and criticized. The existence of a permanent body with a definite policy and a constant attitude of friendliness toward other organizations is therefore of the utmost importance. The Council feels that, during the short period of its existence, gratifying progress has been made in this direction and that the Association and its activities are gradually coming to be understood and appreciated by intelligent and broadminded citizens.

CANCER

The subcommittees had been effective in their work. A new subcommittee was that on cancer, headed by Dr. Thomas S. Cullen as chairman, and it had begun a series of articles for enlightenment of the public on many phases of cancer.

PATENTS

An attempt had been made to secure participation by the American Medical Association in the holding of patents on medical devices, and the Board of Trustees was requested to look into the matter in cooperation with the Judicial Council.

THE AMERICAN COLLEGE OF SURGEONS

At this time also there came before the House of Delegates information regarding the formation of the American College of Surgeons, with a resolution from the state of Illinois deprecating this organization. The resolution was laid on the table, as was another substitute resolution to the same effect.

The House of Delegates encouraged the Council on Health and Public Instruction to correlate existing national health organizations in the manner proposed and to make the necessary surveys of the health activities of the federal government.

TWO NEW IMPORTANT ACTIONS

As the year went on, the Board of Trustees took two actions of great significance. First it decided to publish a series of monographs on anesthesia for the general information of the medical profession and for the advancement of knowledge of this subject. Next it created a reserve fund containing $125,000 as a first instalment, which was to grow and grow as the years went on.

(To be continued)

Clinical Notes, Suggestions and New Instruments

RENAL OSTEODYSTROPHY

COL. JAMES S. NORMAN
LT. COL. ROBERT PERLMAN
and
CAPT. STEPHEN BASTABLE
Medical Corps, Army of the United States

Extensive bone changes may occur in some patients who show evidence of chronic uremia. The chronic uremic state may be associated with congenital anomalies of the kidneys and the urinary ducts, congenital hydronephrosis, chronic cystic diseases of the kidneys and chronic interstitial nephritis. Renal osteodystrophy or renal rickets is seen uncommonly in children and rarely in adults. Amongst many thousands of troops examined in the orthopedic clinic of a large army station hospital, 1 case of renal osteodystrophy in an adult was discovered.

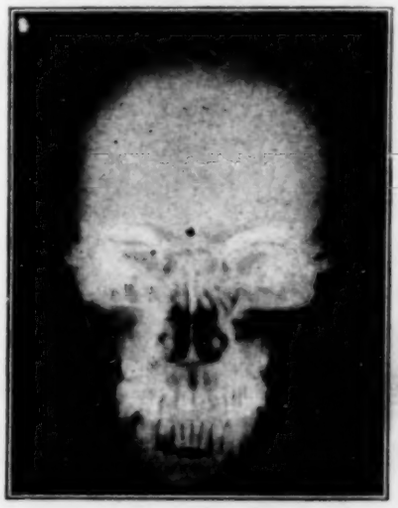

Fig. 1.—Anteroposterior view of the skull reveals fine stippling. There is a defect about 1 cm. in diameter in the lower posterior quadrant of the right parietal bone.

REPORT OF CASE

History.—V. J., a white man aged 20, was admitted to the orthopedic section of an army hospital on March 14, 1944. During a routine examination in February 1944, preparatory to overseas service, the soldier was referred to the orthopedic clinic because of the presence of unduly prominent clavicles. The patient was without subjective complaints. He revealed that at the time of his examination for induction into the army in February 1943, he was informed that his collar bones were very prominent. Roentgenographic studies in the outpatient department revealed changes in the skeleton which led to his admission to the hospital for further study.

The past history of the patient disclosed that he had had the usual childhood diseases. In response to questioning, he stated that for five years prior to this admission he had observed that he lacked energy. For this reason he shunned all athletics. Also for the past five years he noted nocturia once a night. He served as a private secretary in civilian life. He was a clerk in the army and carried on in a satisfactory manner in this capacity. He showed a high degree of intelligence. The family history was noncontributory.

Fig. 2.—Lateral view of the skull reveals fine stippling and osteoporosis. There is a well defined calcification in the region of the choroid plexus of the left third ventricle.

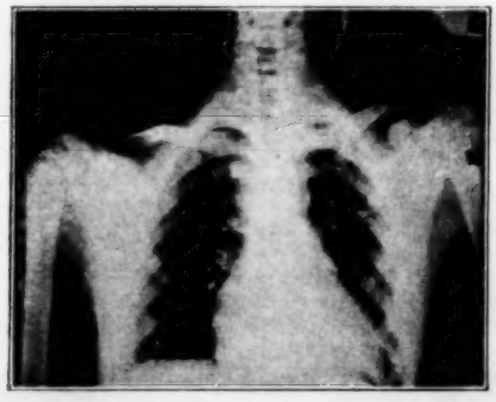

Fig. 3.—Anteroposterior view of the thoracic cage; the epiphyseal disks of the upper ends of the humeri are open. There is slipping of the humeral heads. Calcification at the acromioclavicular and sternoclavicular joints is delayed.

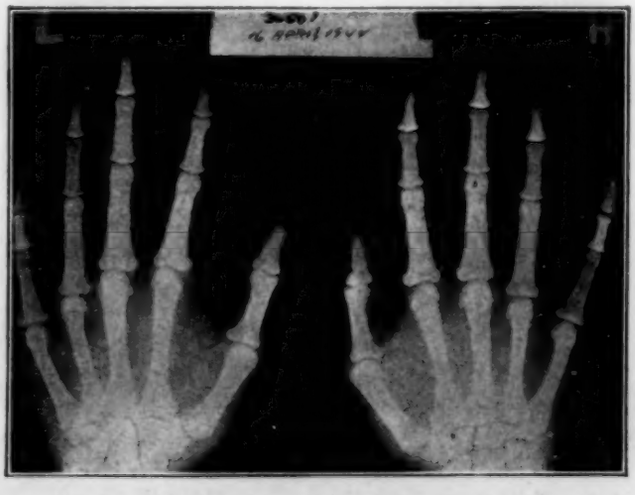

Fig. 4.—Anteroposterior views of the hands revealing calcification of the blood vessels of the thumb and fingers. There is palisade-like periosteal new bone formation in the middle phalanges.

Physical Examination.—Physical examination revealed an alert, cooperative white man. He did not appear ill. He was pale, blond and asthenic. His temperature was within normal limits. The pulse rate averaged 88 per minute and the respiratory rate 18 per minute. The blood pressure was 136 systolic and 84 diastolic. The examination of the head revealed that the skull was large and increased in its anteroposterior diameter. The eyes were prominent but definite exophthalmos and abnormal eye signs were absent. The report of the ophthalmologic consultant revealed that under dilatation each lens was observed to have a small, centrally placed "powder cataract" of the variety known as "cataracta pulverulenta centralis." This was a biconcave disk located in the fetal medeus and made up of small shiny white dots fused together to form a disk. The center of this disk was clear. There was also a clear zone between the capsule and the opacity. The opacities were bilaterally symmetric and about 3 mm. in diameter. In the periphery of each retina was a nondescript pigmentary retinal degeneration consisting of small, brownish gray pigment blotches distributed all around the posterior segment in the form of a girdle. Visual field studies were normal. The teeth failed to show abnormalities. Masses were not palpable in the neck. The sternoclavicular joints were prominent, giving the clavicles an unusually prominent appearance. The examination of the heart, lungs and abdomen failed to reveal abnormalities. Neurologic examination was not noteworthy.

Fig. 5.—Lateral view of the dorsal spine reveals slight exaggeration of the dorsal kyphosis. There is wedging of the body of the sixth dorsal vertebra. There is narrowing of the intervertebral space and irregularity of the adjacent margins of the bodies of the sixth and seventh dorsal vertebrae. The configuration of the remaining vertebral bodies appears normal.

Laboratory Data.—Urine: Urinalysis revealed the presence of albumin in all specimens. The highest specific gravity determination was 1.009. The phenolsulfonphthalein test showed elimination of 8 per cent of the dye in four specimens.

Blood: Examination of the blood revealed: red blood cells 4,600,000; hemoglobin 90 per cent; white blood cells 9,400 with a differential count of segmenters, 77 per cent; stabs, 16 per cent; eosinophils 2 per cent, and mononuclears 5 per cent. The Kahn test was negative. The blood level of sugar was 100 mg.; calcium 10.4 mg.; phosphorus 6.9 mg., and nonprotein nitrogen 100 mg. per hundred cubic centimeters, with 76.5 mg. on another determination. The level of urea nitrogen was 50 mg.; creatinine 2.5 mg.; cholesterol 175 mg.; total protein 7 Gm.; albumin 4 mg., and globulin 3 mg. per hundred cubic centimeters.

Spinal Fluid: On examination of the spinal fluid, manometric studies revealed normal pressure. The Wassermann test was negative. The level of sugar was 63.3 mg. and of total protein 33 mg. per hundred cubic centimeters. The lymphocyte cell count was 3.

Roentgenographic Examination.—Roentgenograms of the entire skeleton, thorax and abdomen and retrograde studies of the urinary tract were made during the period from Feb. 28, 1944 to April 16, 1944. Comparison of serial films failed to reveal essential changes in the lesions indicative of progression or regression of the process.

Fig. 7.—Anteroposterior views of the knees reveal erosion of the upper tibial metaphyses on the medial aspect.

Fig. 6.—Anteroposterior view of the pelvis reveals calcification of the hypogastric arteries. The epiphyses of the iliac crests are open. Both sacroiliac joints appear fuzzy and the margins are indistinct. There is erosion in the regions of the ischial tuberosities and the pubic bone near the symphysis pubis. One upper femoral epiphysis appears closed whereas the opposite one is incompletely fused. The femoral heads appear mushroomed.

Reproductions of roentgenograms of various parts of the skeleton are seen in figures 1 through 9. The study revealed mild decalcification particularly in the skull and the tibias. Diploe was not seen in the calvarium. An approximately circular defect 1.0 cm. in diameter was seen in the lower posterior quadrant of the right parietal bone. Similar smaller defects were observed elsewhere in the skeleton. Osseous erosion was seen in the metaphyseal area of the upper inner aspects of both tibias and in the region of the ischial tuberosities. Most of the epiphyseal cartilages were closed. The epiphyseal cartilages of the upper ends of the humeri were open and there was slipping of the upper humeral epiphyses. The epiphyseal cartilages of the iliac crests were open. One of the upper femoral epiphyseal cartilages was not completely fused. The femoral heads had a slightly mushroomed appearance. The acromioclavicular and sternoclavicular joints appeared widened and a considerable part of these adjacent bones were not calcified. This change was also observed in the region of the symphysis pubis. The sacroiliac joints were hazy and indistinct. Calcification was seen in the vessels of the hands, feet and pelvis. Palisade-like periosteal new bone formation was apparent in the middle phalanges of the fingers. Retrograde renal studies revealed a very small

right kidney pelvis, the lower and middle calices of which retained their cupping, but the upper calyx was not clearly outlined. The left kidney pelvis was larger and presented good cupping of its calices. The lower third of the left ureter was slightly dilated. The right kidney shadow was 7.5 cm. in its

Fig. 8.—Lateral views of the legs reveal evidence of mild decalcification. There are localized areas of rarefaction of the bone.

long axis and the left was 10.5 cm. in the same axis. Evidence of renal calculus was absent. The liver and spleen were not enlarged. The psoas shadows were symmetric.

COMMENT

On completion of these studies and establishment of a diagnosis this soldier was discharged from the Armed Forces. The roentgenographic and laboratory studies established the diag-

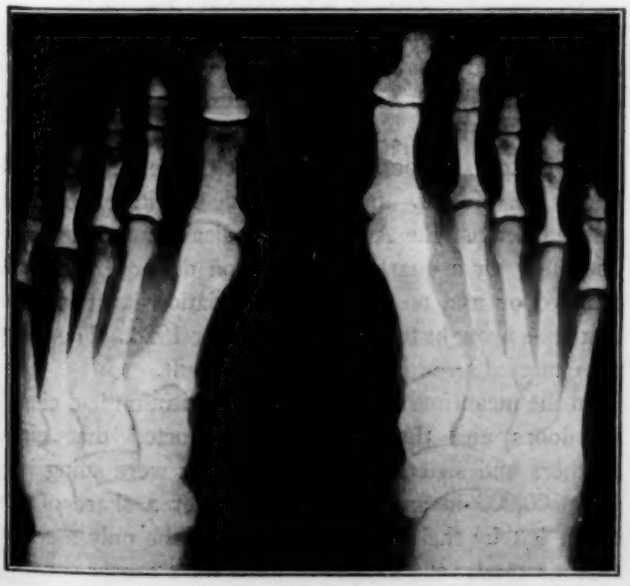

Fig. 9.—Anteroposterior views of the feet reveal evidence of calcification of blood vessels.

nosis of renal osteodystrophy. This term is used in preference to renal rickets or renal hyperparathyroidism because of the widespread skeletal manifestations of the pathologic process and because the case was not followed beyond the stage recorded. Most cases have been in young adults and children who show congenital dilatation of the ureters and renal pelvis or congenital hypoplasia of the kidneys complicated by a chronic nephritis as in this case, or it may be due to chronic glomerulonephritis and calculous pyelonephritis after puberity. These patients may manifest polydipsia, polyuria, dry skin, headache, anorexia or delayed sexual development. Their stature may be small. Pronounced renal failure occurs associated with an increase of nonprotein nitrogen, acidosis and hyperphosphatemia. Parathyroid hyperplasia may develop in these cases. The changes shown on the roentgenograms have been demonstrated in previously recorded cases. Calcium deposits in the neighborhood of joints have been recorded by others but were not seen in this case. The palisade-like periosteal new bone formation seen in the phalanges of the hand is an unusual feature.

The skeletal changes are considered to result from impaired absorption of calcium from the intestine. Phosphates, eliminated from the intestines in large quantities, combine with calcium to form insoluble calcium phosphate, resulting in considerable loss of calcium and decalcification.

SUMMARY

Attention was directed to a case of renal osteodystrophy in an adult by the presence of unduly prominent clavicles. The patient showed evidence of a chronic uremic state with azotemia and hyperphosphatemia. The roentgenographic changes demonstrated were mild osteoporosis, stippling of the skull, delayed ossification at the epiphyseal cartilages in some areas, slipped humeral epiphyses, metaphyseal erosion, palisade-like periosteal new bone formation and calcification of the media of arteries.

Council on Physical Medicine

The Council on Physical Medicine has authorized publication of the following report. HOWARD A. CARTER, *Secretary.*

CONTRA DIAPHRAGM ACCEPTABLE

Manufacturer: Contra Creme & Diaphragm Company, Severna Park, Md.

This product is a vaginal diaphragm which may be prescribed by a physician for patients when he believes contraceptive measures are indicated. It is designed for use with a spermicidal cream that has been accepted by the Council on Pharmacy and Chemistry and was described in New and Nonofficial Remedies, 1946, page 360. The Council on Physical Medicine stated its requirements for acceptability of contraceptive devices in THE JOURNAL, Dec. 21, 1946, page 991, and the product hereinafter described is accepted as meeting those requirements.

The Contra Diaphragm consists of a domelike lamina of rubber bounded by a torus shaped rim. The rim contains a ring of spirally wound, cadmium plated piano wire; the ends are joined without soldering, and the ring is rolled into the rubber. The substance of the diaphragm and rim is made of 60 per cent solids—liquid latex rubber dipped five times. The thickness of the rim is 4.5 mm., and its flexibility is such that 460 Gm. of weight compresses it to 60 per cent of its original diameter. The overall diameter, expressed in millimeters, is used to specify the size, and ten sizes are supplied, progressing by 5 mm. steps from 50 mm. to 95 mm. The diaphragm is packaged with a 65 Gm. tube of Contra Creme in a plain box with slip label only.

Evidence of harmlessness and efficacy has been furnished by competent medical investigators specializing in gynecology and obstetrics. Data have been submitted showing a satisfactory shelf life and use life. The company has agreed to stamp date of manufacture and date of warrant expiration on each package.

The directions warn against the use of oils, state that Contra Creme is to be used with the diaphragm, give adequate instructions about cleaning, advise inspection for holes and tears, and recommend fitting by a physician. The advertising matter is acceptable.

The Council on Physical Medicine, on recommendation of the Consultants on Contraceptive Devices, voted to include the Contra Diaphragm in the list of acceptable devices.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, MARCH 15, 1947

HOXSEY—CANCER CHARLATAN

Of all the ghouls who feed on the bodies of the dying, the cancer quacks are most vicious and most heartless. This statement was made in The Journal of the American Medical Association and in *Hygeia* some years ago as a comment on Norman Baker, notorious cancer quack of Muscatine, Iowa, who subsequently was convicted and confined to the penitentiary; shortly after his release, he died. Among those who were associated with Baker was Harry M. Hoxsey. He now appears on the medical scene again, this time in Dallas, Texas, endeavoring to promote a treatment of cancer by methods distinctly those of the charlatan.

The effrontery and brazenness of the cancer charlatan can hardly be equaled by any other exploiter of the weakness and credulity of mankind. Apparently, Harry Hoxsey was able to obtain a visit to his cancer clinic in Dallas by U. S. Senator Elmer Thomas of Oklahoma; he is now circulating throughout the nation a transcript of the proceedings of that visit. He has been able to get a commission appointed in Oklahoma consisting of state legislators and senators, who it is said will visit his clinic and pass on his technics. The action of the joint legislative committee of Oklahoma is unparalleled in recent history, although some Ohio legislators almost a century ago tried to pass on a cure for asthma. According to newspaper reports the Oklahoma legislative committee consists of five senators and five house members who will make the junket accompanied by Dr. Grady Mathews, health commissioner. Dr. Louis H. Ritzhaupt of Guthrie, Okla., who is a Fellow of the American Medical Association and a surgeon, according to the newspapers, told the state legislature that he thought the medical profession of Oklahoma "was open to any suggestion" and said he was sure that "scientific minds would be willing to go into the treatment" and offered no objection to the committee making the trip.

Here is the record of Harry Hoxsey. It has an aroma that smells to high heaven. It has been published on several occasions in The Journal of the American Medical Association. It is amazing that any physician anywhere would lend himself to any recognition of Hoxsey.

The father of Harry M. Hoxsey, one John C. Hoxsey, a quack now dead, used to dub himself "doctor." Hoxsey senior dabbled in veterinary medicine, faith healing and cancer curing. Around 1910 he was indicted with two others by the Montgomery County (Ill.) grand jury on the charge of attempting to blackmail a dentist of Litchfield. Following the indictment, Hoxsey senior disappeared but the two conspirators were convicted and punished. Hoxsey senior avoided arrest for some months; then he was jailed until he furnished the $5,000 bail required. He died in 1919, and the cause of his death ironically was cancer.

Following the death of Hoxsey senior, nothing further was heard of his alleged cancer cure until 1924. Then Harry M. Hoxsey, the son, formed a common law trust with the title "National Cancer Research Institute and Clinic." The declaration of trust stated that Harry Hoxsey was the "owner and possessor of a secret formula for the compounding of a treatment for cancer" and that this treatment was "something entirely new in medicine." Bear in mind that this was 1924; more than twenty-two years have elapsed since Harry Hoxsey launched it on the public. Certainly if it possessed any merit whatever in the treatment or cure of cancer that fact would long since have been established.

By 1925 Hoxsey's associates had eliminated him from the National Cancer Research Institute and they had joined with another cancer quack, one Lester Tilton of Clinton, Iowa, in a new piece of fakery known as the "United Cancer Institute." That one died in 1926. Hoxsey then showed up at Taylorville, Ill., where he got the whole chamber of commerce in Taylorville interested in establishing a cancer cure sanatorium.

The Hoxsey cancer cure at that time, as proved by the Laboratory of the American Medical Association, was essentially the escharotic treatment of cancer with arsenic as the base. After The Journal of the American Medical Association published information about Harry M. Hoxsey and the Hoxide Institute, suit was entered against the American Medical Association and its editor for a quarter of a million dollars. The suit dragged on and on until the Association itself insisted that it be brought to trial in December 1928. The court then entered an order dismissing the suit.

In the meantime the Taylorville institution had closed its doors and the newspapers reported that eight brothers and sisters of Harry Hoxsey were suing him for $500,000 in an attempt to recover a share of the estate left by their father; apparently the only asset in that estate was the alleged formula for a cancer cure.

Next we hear of Hoxsey as being associated with Norman Baker of Muscatine, Iowa, who sued the American Medical Association for a quarter of a million dollars for calling him a quack. This case was heard in the Federal Court at Davenport, Iowa, in 1932;

the jury unanimously decided that the American Medical Association was quite justified in what it had written about Norman Baker. In that case, which was tried in 1931, Harry Hoxsey himself was called to the stand. Hoxsey testified at that time that he was 30 years old and that his education had not even extended through the eighth grade. He then worked as a coal miner. In 1921 he went into the cancer cure business at Taylorville, Ill. He testified that he went to Muscatine, Iowa, with Norman Baker in March 1930 and stayed at the Baker Institute until Sept. 4, 1930 on a percentage contract basis. He admitted that he treated many patients and even used the hypodermic needle and gave some injections. On cross examination it was brought out that Hoxsey and Baker had had a disagreement because Baker was using some other treatments besides the Hoxsey treatment. It was brought out on the stand that a Dr. Statler once cut a woman's breast under the direction of Hoxsey and that in another case Hoxsey himself cut the breast and the patient died five days later. It was also brought out that another patient went to the Baker Institute where Hoxsey started to treat him. When the young man left the Baker Institute he went to the State University of Iowa Dermatologic Clinic, where they found he was not suffering from cancer but from "barber's itch."

Later Hoxsey promoted his cancer cure in Atlantic City, Philadelphia and other places. For a time he headed an alleged cancer clinic in Detroit, where he hired a renegade physician to help him evade the medical practice act of that state. When he came in conflict with the authorities, he left that state. In 1932 he was heard from in Wheeling, W. Va., in connection with a Hoxie Cancer Clinic. Soon after opening this clinic he was arrested and held under bond. Next he moved to Atlantic City, N. J., where he interested some laymen in financing his cure. Still later he was tied up with the Spann Hospital in Dallas, Texas, and after that with the Bryan and Peak Cancer Clinic. In 1941 Hoxsey was fined $25,000 and court costs and sentenced to five months in jail for practicing medicine without a license. That sentence, however, was reversed by another court.

In October 1945 Hoxsey appeared at the National Cancer Institute with three congressmen to find out whether or not the National Cancer Institute would investigate his cure. A letter from the National Cancer Institute reads:

> Mr. Hoxsey seems to have a persecution complex and stated that he had been treated very unfairly by the American Medical Association many years ago. He says you thought his remedy to be something worth while and would have taken it up if he assigned over to you personally the entire rights.

This statement is of course an outright falsehood typical of the misrepresentation, chicanery and deceit that characterize the actions of charlatans.

Apparently Harry Hoxsey in his performances in Dallas, Texas, is being aided by osteopaths, who are licensed to practice medicine in that state. Apparently he has been successful in hoodwinking and deceiving eminent jurists and other important persons to the extent that they have given him tacit if not actual support. Apparently his performances and his success have caused him to believe that it is now possible for him to exploit widely his method of treating cancer and that he can "get away with it."

Because of the nature of cancer, it is among the most dreaded of all diseases. People with cancer are willing to try any kind of treatment that is offered by almost any agency. The quacks claim to cure many persons of cancer and in some instances bring support from people who believe that they have been cured, when the diagnosis has never been made by scientific methods.

Harry Hoxsey has had more than twenty years in which to prove such virtues as might have existed in his method. Such proof has never been forthcoming. The American Medical Association has from time to time published the records of more than forty cancer charlatans who have offered their methods to the American people since 1900. These methods have included injections of innocuous mixtures of water and inert salts, caustic pastes and even more bizarre quackeries. Not one of these has ever been able to prove that it produced benefit, and certainly not one has ever resulted in curing cases of cancer. How long will the complacent authorities of such states as Texas continue to tolerate Harry M. Hoxsey?

EFFICIENCY IN MILK PRODUCTION

In times of national emergency attention is commonly focused on the adequacy of the food supply; the use of available grain and other plant sources of food for animal feed customarily is brought into question at such times. From the point of view of nutrition, meat and other animal products such as dairy products and eggs are attractive because of the flavor, concentration of nutrients and high biologic value. These nutritional advantages are obtained, however, at considerable cost in the course of transformation of nutrients from farm animal feed to the ultimate human food product. Thus it has been calculated that farm animals consume almost four times the food energy that is eaten by people and two and one-half times the grain that would suffice to support the food needs of the human population.[1] When animal feed supplies are scarce, nutritionists must determine the animal food product that represents the most efficient use of the animal as a converter of energy.

In a recent review of this topic, Maynard[2] has compared pork, milk, eggs, poultry, beef and lamb as representative animal food products, using several criteria as a basis for deciding which of these foods represents the best use of animal feeds. On the basis

1. Forbes, E. B.: Indust. & Engin. Chem. **18**: 1263, 1926.
2. Maynard, L. A.: J. Nutrition **32**: 345 (Oct.) 1946.

of percentage of gross feed energy recovered in the food, pork and then milk lead the list; when the number of feed units of concentrates needed to produce 2,600 calories (roughly a daily human requirement) is computed, milk is followed by lamb and pork in the order of efficiency. When the comparison is based both on the edible food protein per thousand calories of animal feed and on the percentage of feed protein appearing in the food, milk, pork and poultry stand out. A consideration of the minerals and vitamins produced for each thousand calories of feed in the six representative animal food products again emphasizes the relative superiority of milk on the basis of content of calcium, vitamin A, riboflavin and protein. The various comparisons made by the Cornell investigator support the claim of the dairy farmer for priority when animal feed supplies are limited.

The doctor was probably the first to recognize the unique dietary advantages of milk; progress in nutrition has confirmed this point of view and provided experimental evidence for it. The foregoing observations on the efficiency of transformation of feed energy in the production of milk raises this food product to a new importance in the national program of nutrition.

ALLERGY IN THE PRODUCTION OF LESIONS IN DISEASE

In a recent discussion[1] of the allergic pulmonary reactions of Loeffler's syndrome it was recognized that this syndrome may occur under many allergic conditions. In a paper on the morphologic similarities of the lesions, presumably allergic in nature, of rheumatic fever, periarteritis nodosa and "other allergic syndromes" Bergstrand[2] adopts the explanation that the lesions in the joints, the heart, the blood vessels, the skin and other structures of rheumatic fever are caused by allergic reactions in which the antigen is derived from hemolytic streptococci. The vascular lesions may be much like those in periarteritis nodosa, and more or less transient lung infiltrations with eosinophilia occur in rheumatic fever.

As for periarteritis nodosa, there is direct experimental evidence of its allergic nature. Bergstrand describes 4 cases of asthma with typical transient pulmonary infiltrations, abdominal pain, diarrhea and nasal polyps, but the asthmatic features were the most conspicuous. Besides the usual asthmatic lesions, vascular changes occurred in the lungs and other structures like those characteristic of periarteritis nodosa and rheumatic polyarthritis. Foci of fibrinoid degeneration in connective tissue and granulomatous areas like those seen in rheumatic fever were present also. In the lungs were interstitial inflammatory changes, serous exudate, eosinophils and giant cells, also chronic proliferation and changes resembling those of rheumatic pneumonia. The importance of allergy in the genesis of lesions in disease appears to be perhaps greater than generally understood. The evidence at hand certainly indicates that in rheumatic fever, in periarteritis nodosa and in fleeting lung infiltrations the lesions result from allergic reactions.

The question whether eosinophilic granuloma of bone is allergic is now under discussion.[3] Of course the clinical manifestations depend on the place or places where the reaction is most pronounced as well as on the nature of the etiologic agent, that is the allergen. Whether an etiologic grouping of the allergic pulmonary syndromes can be made on the basis of the symptoms and the lesions is a question. It may well be that such allergies due to different factors may cause different lesions and a different clinical course.

1. The Allergic Pulmonary Reactions of Loeffler's Syndrome, Current Comment, J. A. M. A. **133**: 325 (Feb. 1) 1947.

2. Bergstrand, H.: Morphological Equivalents in Polyarthritis Rheumatica, Periarteritis Nodosa, Transient Eosinophilic Infiltration of the Lung and Other Allergic Syndromes, J. Path. & Bact. **58**: 399 (July) 1946.

Current Comment

GLUCOSE VS. ANOXIA

Consciousness may be prolonged in anoxia due to high altitude flying by the previous ingestion of glucose. Riesen and his associates[1] of the Yerkes Laboratories of Primate Biology, Yale University, made studies on volunteers who were given a supplementary feeding consisting of 80 Gm. of dextrose dissolved in 350 cc. of water with or without the addition of 1 Gm. of vitamin C (ascorbic acid), two hours after a meal. Control feedings were made with 0.2 Gm. of saccharin substituted for the dextrose and with citric acid substituted for ascorbic acid. After an interval varying from thirty to eighty minutes, each volunteer was subjected to an anoxia test in an altitude chamber. The tests were based on handwriting criteria from a dictation ditty. Thus was determined the duration of "useful consciousness" at the reduced oxygen tension. In a typical experiment 39 control volunteers lost "useful consciousness" on an average at the end of 187.5 seconds in an anoxia test at 27,000 feet in the altitude chamber. In contrast, 38 volunteers previously fed glucose retained effective consciousness on an average for 261 seconds. This was a 40 per cent prolongation of "useful consciousness" as the result of preflight glucose feeding. Tests showed that the protection afforded flying personnel by the glucose solution is greater thirty to fifty minutes after its administration than after an interval of sixty to eighty minutes. Vitamin C, either alone or in conjunction with glucose, was without demonstrable effect on the prolongation of consciousness. These results confirm experimental evidence previously reported by

3. Schajowicz, F., and Polak, M.: Study of So-Called "Eosinophilic Granuloma" and Its Relations to Xanthomatosis of Bone, Arch. de histol. normal y patol. **3**: 47 (June) 1946.

1. Riesen, A. M.; Tahmisian, T. N., and Mackenzie, C. G.: Proc. Soc. Exper. Biol. & Med. **63**: 250 (Nov.) 1946.

King,[2] Green,[3] Eckman [4] and others, who found that high carbohydrate diets increase aviation performance significantly, as determined by visual, psychomotor and mental performance. They suggested that high carbohydrate meals increase aviation performance because of the higher carbon dioxide yield together with a minimum metabolic need for oxygen (anaerobic tissue respiration).

GASTROENTERITIS ABOARD SHIP

Recently Meyers [1] reported a study of major outbreaks of "gastroenteritis" on ships sailing in the Pacific Ocean during 1945. The major episodes investigated were of three different types of approximately equal numbers: those caused by Shigella, by Salmonella and by unknown causes, probably a virus. Meyers believes that food intoxication due to staphylococci was fairly common, but because of the mild and short duration of this type of gastroenteritis few outbreaks were investigated. The majority of outbreaks of gastroenteritis aboard ship are preventable by proper supervision. The most common points overlooked include failure of routine inspection of hands of food handlers and prompt removal of all food handlers from duty who show any signs of illness; the use of contaminated sea water in the vegetable peelers and on the decks of the galley, butcher shop, vegetable preparation room and the improper technic of handling cooked fowl; holding food at galley temperatures too long, and absence of soap from latrines and inadequate cleansing of hands of those involved in preparing and serving foods. If a virus is suspected as an etiologic agent, measures to control respiratory illness should also be instituted, including isolation of all patients, if possible, checking the bunking arrangements and bunking space and avoidance of transfer of men ashore or to other ships unless absolutely essential. Apparently some types of "gastroenteritis" have been particularly serious among infants traveling by ship.

THE CONSTITUTIONAL FACTOR IN THE COMMON COLD

Data on upper respiratory infections occurring among 721 boys at the Phillips Exeter Academy during each of the academic years from 1935-36 through 1938-39 have been analyzed in a study of the stability of resistance. A total of 4,888 colds was reported. The boys were divided into six groups on the basis of years in residence at the school. Analysis of the data included the mean number of colds for each of the six groups, correlation coefficients grouped according to successive years and by one or two year intervals and analysis of variance. Each boy tended to have the same number of colds year after year; individual boys varied significantly from one another with respect to the number of colds experienced. Also for the period of the study individual boys tended to vary more than the variation existing between years. Sargent and his colleagues [1] consequently support the view that a constitutional or an environmental factor plays a significant part in the etiology of the common cold. Since the environment at Exeter Academy is relatively constant, they believe that the constitutional factor is the more probable element involved. The nature of the constitutional factor cannot be defined, but the evidence presented in this and other studies supports the recommendation of these investigators that future research on the common cold should embrace the physical and physiologic characteristics of the host.

BICARBONATE AND RENAL REGULATION OF ACID-BASE BALANCE

The important role played by the kidney in the regulation of acid-base balance has been repeatedly discussed.[1] This effect is manifest for example by the reabsorption of base, the excretion of acid phosphate and other acidic anions, the synthesis of ammonia and the formation of citric acid. The role of the kidney in regulating acid-base balance by another means, the reabsorption of bicarbonate, has recently been studied carefully by a group of workers at Cornell University.[2] These investigators followed the quantitative relationship between plasma bicarbonate concentration and the rates of tubular reabsorption and urinary excretion of bicarbonate. The results indicate that there is a rather definite "renal threshold" for bicarbonate of approximately 25 millimols per liter of plasma. Below this value practically all the bicarbonate in the glomerular filtrate is reabsorbed, whereas above the renal threshold value bicarbonate is excreted, the rate being the linear function of the plasma concentration. Furthermore, it was found that the reabsorption of bicarbonate per unit of time varies directly and proportionally with changes in the rate of glomerular filtration. Thus the renal bicarbonate threshold is relatively stable and nearly independent of the glomerular filtration rate. The quantitative efficiency of renal reabsorption was illustrated by a calculation showing that under ordinary conditions in which there is a need for base conservation in man 99.95 per cent reabsorption of bicarbonate may occur. In contrast, in case of base excess, bicarbonate excretion may be almost equally complete, as has been observed on certain therapeutic and experimental regimens in which more than 100 Gm. of sodium bicarbonate has been ingested and excreted per day. The renal reabsorption and excretion of bicarbonate therefore constitutes a primary mechanism whereby the body may defend itself against either loss or expansion of its alkali reserve and thus maintain its acid-base balance.

2. King, C. G.; Bickerman, H. A.; Bouvet, Winifred; Harrer, C. J.; Oyler, J. R., and Seitz, C. P.: J. Aviation Med. **16**: 69 (April) 1945.
3. Green, D. M.; Butts, J. S., and Mulholland, H. F.: J. Aviation Med. **16**: 311 (Oct.) 1945.
4. Eckman, Morris; Barach, Beatrice; Fox, C. A.; Rumsey, C. C., Jr., and Barach, A. L.: J. Aviation Med. **16**: 328 (Oct.) 1945.
1. Meyers, William A.: Gastroenteritis Aboard Ship: Common Types Encountered, and the Prevention and Control of Outbreaks, Pub. Health Rep. **61**: 1853 (Dec. 20) 1946.

1. Sargent, Frederick; Lombard, Olive M., and Sargent, Virginia W.: Further Studies on Stability of Resistance to the Common Cold, Am. J. Hyg. **45**: 29 (Jan.) 1947.
1. Urinary Acid, editorial, J. A. M. A. **130**: 638 (March 9) 1946.
2. Pitts, R. F., and Lotspeich, W. D.: Am. J. Physiol. **147**: 138 (Sept.) 1946.

ORGANIZATION SECTION

NATIONAL CONFERENCE ON RURAL HEALTH

Second Annual Meeting, held in the Palmer House, Feb. 7 and 8, 1947

DR. F. S. CROCKETT, Lafayette, Ind., Presiding

FRIDAY, FEBRUARY 7

The conference was called to order at 9:45 a. m. by the Chairman, Dr. F. S. Crockett, Chairman, Committee on Rural Medical Service, American Medical Association.

CHAIRMAN CROCKETT: We doctors and farmers are trying to improve not only rural medical service but also rural health. Rural health embraces everything that will promote better living conditions, better living standards and better medical service. We doctors can give good medical service wherever the conditions make it possible.

We may here reach decisions based on our experience and wisdom and embodying the fundamental principles that govern the solution of each problem. To make our labors really fruitful, the farm groups represented here must inititate in each county where they have a chapter the activity that will obtain, through community action, the results desired. But it is at this community level where many times it is most difficult to create an active interest in health measures that will carry through to actual accomplishment.

There are farm areas in many states where the people do not earn enough to pay for good health measures. These areas have a problem different from others only in the economic phase. Some form of outside help is needed, but, whatever is done, the principle of self help should be emphasized.

Address of Welcome

DR. GEORGE F. LULL, Secretary and General Manager, American Medical Association, Chicago: I want to tell you how much I appreciate your coming to Chicago to attend this conference. We feel that this material you are about to cover and which you have covered in the past is of vital interest to doctors all over the country, be they located in rural or in urban areas.

The Farmer and the Medical Service Program

MR. ALBERT S. GOSS, Master, the National Grange, Washington, D. C.: First let us look at the farmers' ability to pay doctors' bills under normal conditions. During the ten year period 1921-1930 the farmers' net income, as compared with nonfarm income, was $200 per capita as compared to $800 per capita for nonfarm people. During 1931-1940 it was $150 to $580. During 1945, which can hardly be considered a normal year, it was $740 to $1,260. You may raise the objection that the farmer has had free house rent and free food, but that is not true, for those items have been calculated and added to his cash income to obtain the income as I have given it. Thus we can see that the ability of the average farmer to pay for adequate medical service is substantially lower than that of nonfarmers.

On the average, farmers live a substantial distance from cities or towns where medical and hospital service is available. They cannot help that. The vocation of raising the food the nation needs requires some of us—lots of us—to live way off from "Main Street." Before the war in our thousand most rural counties there was only 1 medical doctor for every 1,700 people. In our big cities there was 1 doctor for every 650 people. In most rural communities there are less than 2 hospital beds per thousand people. In fact, 1,200 of our rural counties have no recognized hospital within their borders, and these counties have a total population of 15 million people. Hospital workers tell us that we should have 3.5 or 4 hospital beds per thousand rural people.

Let us look at the accident rate among farmers and those employed in industry. The accident death rate per hundred thousand workers on farms during 1945 was 53, as compared with 19 in manufacturing industries. When it comes to less serious accidents, but those still requiring medical care, farm experience will show that most farm workers have one or more such accidents every year. Even the farm children are exposed to innumerable hazards. In considering farm accidents we must not forget that the farmer who suffers an accident is usually far from a doctor or a hospital, while most industrial plants have medical service and hospitalization facilities on the premises.

For generations we have believed that our strongest and healthiest boys come from the farm. Figures released by the military service during the late war have awakened us with a rude shock. We found that the farm boy was not nearly so fit physically as the city boy. It was found in 1943 when 18 and 19 year olds were being drafted that, for the country as a whole, 25 out of every hundred were rejected, whereas for farm boys alone 41.1 boys per hundred were rejected. In addition, infant and maternal mortality rates are 25 to 30 per cent higher in rural than in urban communities.

We appreciate the need for maintaining high standards in the medical profession, but the fact remains that over a vast section of America the cost of medical service has increased enormously and the availability of service has become poorer and poorer. Whether rightly or wrongly, we believe it is a simple statement of fact that the feeling has become more and more general that the medical associations, instead of devoting their chief efforts to the improvement of medical standards, have been more interested in eliminating competition in the medical field. Certain it is that medical service is not only much more costly but much more difficult to secure, and rural America is rapidly getting up in arms over the inadequate service.

More and more people are turning to cooperative medicine. It has many advantages, not the least of which is adequacy. It is preventive in character. It is more economical and does not require that farmers be classified as paupers in order to secure adequate service at prices they can afford. It combines the advantages of the specialization of group practice with the efficient use of personnel and facilities. However, in many sections we have faced a storm of resistance on the part of the medical profession against every effort to organize cooperatively to improve conditions, although happily this seems to be diminishing.

I do not want to leave the impression that the physicians are solely responsible for an unsatisfactory situation. The health service, the schools and the farm organizations all have their responsibilities. The point I have tried to emphasize is that we have been trying to meet the situation by the cooperative medicine route but have not had much help; in fact, have met a good deal of resistance.

With the inadequacies of the service and the resistance against change, it is not surprising that more and more farmers are turning toward government help and state control of medicine, including compulsory insurance.

My organization does not believe in state control of medicine; we believe there should be a better way.

Summing up, there is a real problem which must be met if we are to avoid statism in medicine.

Methods of Bringing and Holding Doctors in Rural Areas

DR. FRED A. HUMPHREY, Chairman, Colorado Committee on Rural Medical Service, Fort Collins; Member of the National Committee on Rural Medical Service: Before rural health can be intelligently discussed, some mutual understanding of what constitutes a rural community must be accepted. A rural community may vary in size from one with a radius of a few miles to one with a radius of 50 or more miles. Its population may vary from a few hundred to a few thousand persons.

It is generally conceded that there is no distressing problem of medical care and no difficulty in getting and keeping medical personnel in the more populous rural areas, so our attention and efforts can therefore be concentrated on the larger more

sparsely settled areas, where neighbors are far apart, and towns which are large enough to support a doctor are widely separated. It is in such communities that it will be difficult to convince the younger doctor to locate and establish a practice. Some better system of professional, educational, religious, social and economic relationship will have to be established in order to hold doctors in such rural communities, once they have located there.

The two groups, working as a team, can furnish the necessary leadership to put into operation that part of the program which would apply to their individual area. No rules of procedure can be made which will not have to be revised to fit some unusual condition, since there are so many diverse types of rural areas in the United States. A specific program drawn to the measurement of conditions found in the corn belt of the Middle West would of necessity need some revision to meet the entirely different type of person and occupation present in the cotton belt of the South or the mining areas of either the Eastern or the Rocky Mountain states. However, a start must be made and a general plan outlined which is flexible enough to allow the changes needed to meet the different conditions found in the various sections of the United States.

In drawing up such a plan, the first things to consider are the changes which should be made by the individual farmers and business men in the small towns which will increase their chance of having a doctor locate in their community. The suggestions made are not unreasonable or difficult of accomplishment. More time, money and energy should be spent on such things as good roads, especially from farm to market, improved sanitary conditions, safer water supply and storage and similar local projects than in trying to get a hospital located in their community under the provisions of the Hill-Burton act. Such a hospital should rightfully be located only after a scientific and practical interpretation of a thorough survey of hospital and health needs. The many "ghost towns" scattered in the mining areas of the Mountain states do not present a pleasant picture, but an even more depressing sight would be "ghost hospitals" appearing over the United States in the next few years because of poor judgment now in choosing their locations. If a town and its surrounding trade territory is large enough to support a doctor adequately and wishes to have one, then every effort should be put forth by its citizens to obtain that desire. The initiative is squarely in the lap of the local people, and to secure the goal they may have to offer even further inducement such as the physical facilities which are so essential to a doctor if he is to care properly for the sick. In some cases it may be necessary to take still another step and subsidize the doctor on a monthly basis in order to make his income commensurate with his education and ability. Such subsidies should be financed locally, if at all possible, before application for state or federal aid is made. By all means, after a doctor has located in a rural community its citizens should show their loyalty to him by using him in case of illness and not go to the larger, but more distant, towns for their medical care.

Universal participation in prepayment insurance by farm people will be of definite assistance in bringing and keeping doctors in rural areas and should be incorporated in any plan devised for that purpose.

The medical schools of the United States should be asked to cooperate and join in the attempt to solve the rural health problem. There is no other instrument in organized medicine which can or should lend itself to such a service as easily and efficiently, but a definite program must be submitted to them which will enhance rather than jeopardize the prime purpose to which they owe their existence.

Other medical schools should follow the example of the Colorado university which has established a residency in general practice following the usual rotating internship of one year. In this residency the graduate will study six months each in medicine, in pediatrics, in obstetrics and gynecology and in surgery, with allied specialties included under the four main heads. After this training it is expected that the doctor will be capable of caring for better than 90 per cent of the patients coming to him should he locate in one of the small towns. Possibly other schools have instituted the same program. If not, they should be advised to do so.

Another change in policy which would relieve materially the present shortage of doctors in rural areas is the requirement of from three to five years in general practice before resident training is begun. Such a plan would be of great benefit to the individual by broadening his clinical knowledge and by giving him a better understanding of the difficulties encountered in general practice and a finer appreciation of the economic features involved. A doctor after such an experience would be more mature and better qualified to choose the specialty for which he has the greatest aptitude and in which he has developed the most interest. Later, should he wish to become certified, some credit should be given for the time spent in general practice. It would also be beneficial, at least in the immediate future, by opening many residencies which could be and would be filled by qualified men who have served in the armed forces and who are now attempting to obtain residencies in order to become certified by special boards. These men have seen the advantage in the last war, at least as far as rank is concerned, of being certified and have obtained their desire for special training partially from that observation. In many instances recent graduates of medicine and doctors returning to civilian life want only to be a specialist and have no particular aptitude or desire to practice a particular type of specialized medicine, as evidenced by their acceptance of training in some other field if the one of their first choice is not available.

The final suggestion to the medical schools originates from the statement "You can take the boy out of the country but you cannot take the country out of the boy." In the present condition of many applicants to medical schools to one admission a certain definite proportion of them should come from the rural areas. A boy who has been born and reared in or near a small town is much more likely to return to it than a boy who has experienced nothing but city life.

As methods of "Bringing and Holding Doctors in Rural Areas," suggestions have been offered both to the rural communities and to the medical profession. The recommendations to be carried out by the rural communities are:

That they build and maintain good roads from farm to market.

That they educate themselves on public health matters and put into practice known disease preventing measures.

That they improve their living conditions.

That they have in their area persons trained in first aid and home nursing.

That in some instances they furnish for the doctor the needed facilities, such as equipment and office headquarters; in some localities even a subsidy may be necessary.

That they apply to the proper agency of their state for assistance under the provisions of the Hill-Burton act if financial aid is required to carry on their program.

That they participate in prepayment insurance.

That they patronize their local doctor and whenever possible conserve his time by going to his office.

The recommendations to the medical profession are:

That they require three to five years' general practice before resident training is begun.

That certification boards give credit for such time spent in general practice.

That hospitals establish residencies in general practice.

That students from rural areas be encouraged to study medicine.

That hospital staffs be open to men in general practice.

That the system of medical care to soldiers be adapted to rural medical care.

That the rural practitioner be kept informed on advances in medical science by contact with other medical men at county medical society meetings and short refresher courses held in the rural districts.

Methods of Bringing and Holding Doctors in Rural Areas

MR. CHESTER G. STARR, Director of Rural Health, Missouri Farm Bureau: I recognize very keenly that the problems and conditions vary from state to state. The problems affecting California may be very different from those encountered in

Missouri, and those in our own state will undoubtedly be varied from those found in Minnesota. There are some problems more or less in common, such as trends in medical education, trends in nurses' training, federal aid in building hospitals and medical centers, farm income and like matters. However, often in many states, and I have found this to be true in my own state, the peculiar state problems may offer an opportunity for united action that may be secured before long range national issues can be solved.

The day when every Missouri hamlet had at least one doctor taking care of the farm families of the community has gone with the horse and buggy and will never return. We shall have to think and plan on large community units. At the low point in Missouri, when the armed forces were draining the better practitioners into their services, it was estimated that apart from our metropolitan centers there were not more than 800 doctors of medicine in rural Missouri. From that low point, according to information given me by the Missouri Medical Association, there are now in the same rural areas a total of 1,110 doctors of medicine, or a gain of 39 per cent over the low point. We are further encouraged to know that of about 150 doctors locating in Missouri this past year—over and above those returning to their former locality from the armed forces—98 of the 150 have located in some rural area. In a recent tabulation I found that twenty-six of our rural counties had at least 1 doctor of medicine for each 1,500 people, which I am told is a reasonably good ratio.

We also have some 600 osteopathic physicians in rural Missouri, and in many counties these persons have built a feeling of confidence and reliance on their sevices. There are ten of our rural counties that have at least 1 osteopathic physician to each 1,500 people. When we add both schools together, we come up with some interesting figures of having seventy of our rural counties, or 64 per cent, with 1 physician to each 1,500 people. In the tabulation, I found in one county that there appears to be 1 physician to each 430 people. Naturally, competition in that area is rather "hot."

The greatest problem in Missouri (and it is one requiring our attention) is the increasing age of the practicing doctors of medicine. Quoting again from the data kindly given me by the Missouri Medical Association, in 1946, 43.7 per cent of all rural doctors were above 60 years of age. Eight of our counties do not possess a doctor who is under 60; in eight more 75 to 99 per cent are over 60; in twenty-nine more from 50 to 74 per cent are over 60. Definitely, Missouri needs more young doctors to locate in rural areas, both to take the place of the older retiring or dying members of the profession and also to give us a total larger than that reported for this past year.

Not to be overlooked is the fact that doctors are human beings, some more human than others. They are not to be shunted here and there on the dictates of some power—at least not in these United States. Favorable conditions must be offered for any doctor to locate in any given rural area. As I view the situation, there are certain definite favorable factors which either must be secured as rapidly as possible or must already be existing in any area. I do not wish to take unnecessary time to go into details, but I would mention (1) a rather high level of income for the community, (2) a system of good roads, (3) good living conditions such as modern homes, good offices, good schools and good community life, (4) confidence in and use of local doctors by residents of the area, (5) hospital facilities in or nearby for diagnostic and treatment purposes, (6) modern health centers doing a good job of health education and (7) good enrolment in hospital and medical prepayment plans. If most of these advantages are present in any given community, a doctor hunting a location will be human enough to be attracted to it. If they do not exist there is little hope of having a voluntary location. The only remaining solution would be a system of either county, state or national subsidization to remove through public funds some of the disadvantages.

At present I believe that subsidization is the last recourse and would prefer greatly to endeavor to correct adverse conditions through voluntary action by all interested groups and persons.

The Responsibilities of the People

A good level of farm income is a direct responsibility of farm organizations and their members. I think that we can say without any person denying the fact that the major farm organizations have gone a long way in securing parity income for farm people and protecting them against adverse price situations. Also it can be said that the farm organizations will continue to be a considerable factor in retaining a decent farm income.

In Missouri the Farm Bureau has taken aggressive action in reference to the farm road situation. In the last session of the legislature the Farm Bureau and other interested organizations were taking money out of the surplus funds of the state for what is called "milk route" building. They are over and above our own state highway roads. They are not going to be quite the high class roads the state highways are, but we are expecting to spend somewhere around 4 to 6 million dollars a year for the next five years building roads from farm homes to the high class roads. While it will be impossible to have an all-weather road on every mile of the entire road system of the state, we are expecting to have a rather wide flung system that will enable practically every farm family to drive to the nearest community at any time in the year, barring ice and snow drifts.

As farm income continues at a good rate, better living conditions will naturally be found in rural areas and in small towns that live on rural business. Of course, at present, building supply shortages preclude much new building; but these will soon be corrected and small towns will have building booms in proportion to those of the large cities. It is definitely the responsibility of the people of any community to produce good living conditions.

The Medical Profession

I believe that there must be much more discussion with young doctors and those still in school concerning general practice. From the medical journals, from the medical school catalogues, from general medical discussion, too much emphasis is being placed on specialization. The instructors in many medical schools are specialists, command high fees for their outside work and naturally talk about their particular specialty as being the one to follow on graduation. Many medical schools, from information I have picked up, are strongly headed toward making specialists and actually discourage any student from being a member of the general practice group. I sometimes wonder if the specialization is not being carried to the point that good medical diagnosis is being badly overlooked for lack of some sane, well grounded physician to coordinate the findings of the many specialists. I also believe that, provided the medical education is overhauled, more young graduates might find lucrative and more enjoyable practice in some rural area being a general practitioner rather than battling for years in some city to establish himself as a specialist in this or that.

I am also thinking of a system of rural internships whereby those students who have either come from rural areas and retain their liking for rural life or those from towns and cities who might possibly be bitten by the "rural bug" would have an opportunity to become closer identified with rural hospitals and rural life. I wounder if we are going too far afield in this suggestion.

Definitely, a great deal of good could be done by aggressive county medical associations. Many of the shortcomings of the medical profession charged to it by many people and much of the unfortunate propaganda of recent years are due to the lack of aggressive leadership in health education by local doctors. In my work in Missouri I have often found some of the medical men in a county either lukewarm in supporting health improvement or even actively combating the movement. I don't want to be too specific, but I think I am going to use the illustration of one county in southeastern Missouri where a medium sized hospital is acutely needed. I have done considerable work in that county, and I am stymied by the active opposition of four doctors of medicine who are practicing in that county who have gone up and down the roads and have written letters saying that a hospital is not needed in that county; and the nearest

available hospital is 40 miles away. I won't tell you the county. Some of our Missouri folks here know it. I do not wish to level this accusation against all county medical associations, but there is a decided lack of aggressive leadership in many areas. Possibly the American Medical Association and the state medical associations can overcome this fundamental difficulty and inculcate into many county associations a spirit of public welfare and leadership in worth while health movements. In this connection there has been in some areas a feeling that many people bypass the local doctors in many instances, going to large centers and to specialists, leaving the local doctor high and dry. In areas where there has been little attempt by the local doctors to participate in local affairs, especially in local health improvement, can we blame persons for not having confidence in their local physician?

Responsibilities for All Groups

There are some favorable factors in inducing doctors to settle and to remain in rural areas that are responsibilities of all. One of these, much in prominence today, is the matter of building or enlarging the doctor's workshop—the modern hospital. The people of any community will have little incentive to build a hospital unless the physicians and surgeons of the community are willing to practice in the hospital. No doctor or group of doctors can successfully build and operate a hospital unless the people of the community are willing to share in the expense of building and be patients when built. In the areas in Missouri where the Farm Bureau has successfully led movements for the building of modern county public general hospitals this past year the people and the doctors have worked together. In 1946 our people voted between two and a half and three million dollars for building new hospitals in rural Missouri. The same teamwork is needed in health education. In Missouri we have a new act by which people of any county may build and support public health centers. With the third horse, the State Division of Health, we are hoping to have many of our counties equipped with educational health centers.

The third part of the united responsibility is the encouragement of enrolment and use of the prepaid hospital and medical plans. Without the enthusiastic support of hospital management and the medical profession, the Blue Cross and other prepaid hospital plans would be tough sledding. Without the same vigorous support of the medical profession, a prepaid medical plan would be most difficult to make a success. Most rural people are rather closely tied to their family doctor—much more than the average city dweller. If the family doctor tells John or Mary that Blue Cross is good and that in case of illness or accident the medical service will undoubtedly pay for the costs and that he, the doctor, is a member of the Blue Cross and belongs and gives service under the medical plan, then John and Mary and many other Johns and Marys enroll in the prepayment plans.

Hospital Facilities and Health Centers for Rural Areas

MRS. ROY C. WEAGLEY, President of the Associated Women of the American Farm Bureau Federation of Hagerstown, Md.: Although the telephone and improved roads have made their contribution toward relieving the rural health situation, I think that with their advent rural health suffered from an exodus of rural physicians into the cities. For many years both the Associated Women and the parent organization, representing 4¼ million farm people, have been vitally concerned with the inadequacy of medical care and hospital facilities available in rural areas.

Our organization has promoted group health associations and hospital insurance as a means of securing more nearly adequate care at more equitable cost to rural people, but the progress of those plans has been impeded by the lack of facilities to service such plans, and the lack of facilities is greatly responsible for the lack of physicians and nurses in rural areas.

Opportunity for health in rural America equal to that enjoyed by people in urban areas can be obtained only through close cooperation between the various groups of our system and the medical profession.

Although metropolitan areas are in the main fairly well supplied with hospital beds for general medical care, many are planning to expand the present facilities by taking advantage of the national hospital construction act. This in some instances is unwise. In my opinion it would be far better to lighten the present hospital load than to expand facilities. I am not prejudiced to expansion as was the stout lady who deserted her political party because she was against expansion under any consideration. To relieve the existing pressure on overcrowded hospitals, health centers should be coordinated with them. Rural health centers should be established within reasonable distance from the existing hospital. Rural health centers would serve a dual purpose. They would lighten the load in the metropolitan area and they would bring medical care to many rural people. By establishing health centers in rural and needy areas, the effectiveness of the very limited number of medical and nursing personnel now rendering service in those areas could be multiplied.

With a well managed health center, the greater proportion of the approximately 20 babies born to each thousand of population in rural areas could receive adequate care. At the same time the lives of many babies during that first year could be saved. Many mothers too could be spared great suffering from complications.

Essential equipment must be provided for the practice of modern medicine, for the conduct of routine tests and for x-ray service. Without such facilities it is impossible to expect our trained physicians and nurses to consider working in the rural field. It is reasonable to believe, however, that with a better distribution of hospital facilities and health centers will also come a better distribution of physicians, nurses, dentists and medical care generally.

Experience has revealed that the quality of services can be raised by the use of consultants and the facilities of accessible hospitals. My interpretation of the purpose of the hospital construction act is to promote the building of hospitals and related facilities in proportion to the need. In other words, I would say that rural areas, where the needs are greatest, should be given first consideration; otherwise the maldistribution of medical and nursing personnel would be intensified rather than improved. Likewise, if the funds are used mainly for new construction and expansion of existing facilities in metropolitan areas, that would cause even greater disparity between rural and urban opportunities for medical and hospital care.

Construction of Hospitals

MR. LLOYD C. HALVORSON, the National Grange, Washington, D. C.: About all I have to report is what we have been doing in the National Grange. We have sent a letter out to all our state offices, sending them a summary of the hospital construction act, pointing out what responsibilities they can take on the state level to get the legislation through. We suggested that they might want to include state aid toward the construction of the hospital, possibly one third, which would leave only one third for the local community. We pointed out that they need a local hospitalization plan. In some states there will be a law to permit counties to go together and cities and counties to go together in providing the necessary money. Some of the people have written in to us, being somewhat familiar with the law and knowing there is money to spend, asking what procedure they should take. We have to report that as yet most of these states haven't progressed that far in their planning. In other words, as yet the hospital district center hasn't been set up, so we have referred them to the health department for the present. We have suggested that they get in touch with the health department and find out how far they have progressed; and also there might be some tentative plan as to what procedure a local community will have to go through to get this money. We have told our people to make sure that they have farm members. It will be important to farm people to know that they are given some recognition in the laws and procedures that will be laid out.

We have a great deal of hope in these rural health centers as a way of bringing doctors to rural communities. I think there is some fear on the part of the medical profession that these

centers will not provide a high standard of medical care. I think that can be taken care of so that the really urgent cases can be referred to the bigger hospitals. When it comes to the rural community, of course, there may have to be some means to provide one third, or possibly two thirds, in operating the hospital.

Cost of Operating a Hospital

DR. ROBIN C. BUERKI, Dean, Graduate School of Medicine, University of Pennsylvania, Philadelphia; Member of the Federal Hospital Council: As a member of the Federal Hospital Council, at the first meeting I said I had an open mind on everything except one question and one problem; and that is within the confines of the law. I refused to go along with anything suggested that made poor medical care more easily available to the public because that essentially was dangerous practice.

The average cost of operating a hospital is one-third the original cost of the building. So that if you are planning on raising a sum of money for the hospital, be sure that that community each year, from one source or another, can find one third of that original cost to operate the hospital. If you have a quality hospital there, if it can be adequately supported, then it will attract the type of doctor you want to your community and to that hospital. I happen to be dean of the largest and the oldest graduate school of medicine in this country, and more and more I see these young men who are coming up as specialists. I think we are training too many specialists, but today you do need certain specialists represented in the hospital of your community if it is going to do the job the public has a right to expect.

The question of the general practitioner having the hospital open to him and in having greater opportunity in a rural community I have no quarrel with if the board will see that he limits the type of work he does to the field in which he is competent to work. He may be ever so capable an obstetrician and yet, if it came to removing a cataract, he might well be a plumber.

Voluntary Medical Prepayment Plans as They Apply to Rural Communities

MR. EDWARD MERTZ, Administrative Assistant, Department of Education, Farmers Educational and Cooperative Union of America, Denver: The base of the problem is economic and means a lack of rural income and medical purchasing power. In 1943, with farm prosperity at its highest in years, income of persons on farms was only 9 per cent of national income, while farmers made up 20.5 per cent of the national population. The last Census of Agriculture showed about two thirds of our farm families had gross income under $1,000 a year and one third of these had under $400 a year. In 1940 states with 70 per cent or more rural population had per capita incomes of only $300. Even if there were plenty of doctors, nurses, hospitals and health facilities, many farmers still could not afford to use them.

Many rural families cannot participate in voluntary prepayment plans because they have insufficient income—lack of health purchasing power, if you please. Many others will not because they don't have to! Unfortunately in many cases this group includes those who most need help both from an individual and from a community point of view.

Whether the reasons for lack of participation be economic, geographic or psychologic, the fact remains that fewer than 5 per cent of our whole population now receive general medical services on a prepayment basis. Less than 3 per cent of all farm people are covered for even Blue Cross hospitalization. There is much greater coverage in states with predominantly urban population.

Is there any question that a comprehensive health service plan which would provide physician and specialist care, hospitalization, dental services and prescribed drugs cost a farm family at least $100 per year? The next question is "How many farm families could or would invest $100 in medical insurance on a voluntary basis?" Before answering this question optimistically one should remember that in 1941 half of all farm operators had annual net cash incomes of less than $760 per family, including incomes from all nonagricultural sources. These plans do not and will not provide adequate and complete health for rural people.

This should in no way be construed to mean that the Farmers Union is opposed to the development of voluntary prepayment plans of hospitalization and medical services. On the contrary, we are currently engaged in the promotion and building of the Farmers Union Triangle Health Insurance Plan, which is essentially such a plan. At present this low cost plan provides primarily for hospitalization for specified periods. And many farm families use it. We hope soon to extend the hospitalization periods and include medical services, which will of course increase the cost. While many farmers will continue to use it, many will be unable to continue their prepayments because of the cost.

The National Farmers Union builds cooperatives. Some are built to increase the economic income of farm families. We hope this type of enterprise will help make possible a decent standard of living for every farmer, which will raise the levels of health facilities to help answer the health needs of our people. We hope that eventually increased income and cooperative organization will provide adequate health services for farm people.

We recognize that voluntary prepayment plans will not solve the problem. The record of experience clearly indicates how far we have come and probably how far we can go if we continue to disregard economic inability to pay and psychologic refusal to participate. We are not afraid of the word "compulsion" because we do not confuse freedom and responsibility.

We have long since learned that individual freedom is subordinate to the freedom and welfare of all and that public health is the total of individual health. Who now questions the "rightness" of quarantine or compulsory health education? We don't permit part of our citizens to contaminate water and milk supplies deliberately. We have rigid, compulsory laws against major crime. Do you think the Social Security Program is here to stay?

We know that voluntary plans have not and cannot do the total job for many years to come. We know the limitations of these plans. We know the health problem of farm people. We also know their ability, or rather their inability, to buy health at prevailing prices. We know our health problem will become increasingly worse unless we do more.

Therefore the National Farmers Union will continue to build our Triangle Health Service Plan and to cooperate with others in developing this type of program. We will continue to improve our economic ability to buy health services through our cooperatives. And we will continue to build cooperative hospitals and health services.

But we will also continue to use our resources to bring about a universal, compulsory, complete, public health insurance program at a cost which will permit all Americans to live in health. Farm people want more than hospitalization and medical insurance. They want everything it takes to maintain good health.

MR. J. S. JONES, Secretary, Minnesota Farm Bureau Federation, St. Paul: To me it is one of the most healthful indications that I have seen that a group of professional people, medical men, and a group of leaders representing rural organizations will take the time from their busy days to come to a conference like this to discuss this important problem in its various phases.

The first real impetus given to the plan was the success obtained by Blue Cross hospitalization service plans. One of the resistances offered rurally to Blue Cross was "Why not medical care?" With this as a backgroud, state medical associations and laymen took notice and began to develop similar plans relative to prepaid medical care.

The lack of health facilities and health plans among the low income groups led to the development of a philosophy of governmental care among segments of our population. However, the opponents and proponents of that philosophy in the discus-

sions that I have listened to are now living in the past, owing to changed economic conditions. In 1929 the average per capita income for the nation was $686. "Not much there for any kind of medical care." In 1945 the average per capita income was $1,150. Our big problem is trying to maintain that kind of an income. This improvement in the economic picture should be a source of gratification. With the improved economic situation and the increase in the per capita income, rural people in particular have turned to those factors which make for better living. That's why we have this tremendous interest now in better rural schools and better rural institutions.

Group prepayment plans for hospital service and medical care have been organized, stimulated and developed to a great degree by farm organizations. Farm organizations in a large manner have set the pattern for rural people. While these plans are not complete or perfect, they have shown the way to attack the problem of securing against illness and accident. In rural health we have arrived at a place where we have need of coordination of these plans.

The additional value of farm organizations is of great significance. We, the people, are a part of such enterprise; and the people know they are superior to the government purveyed, subsidized attack on the problem. I like to think, in regard to the Blue Cross movement, that we truly have done as much rurally for Blue Cross as Blue Cross has done for farm people in rural communities. When improved relationships develop and are in existence among present health facilities, hospitals, physicians and lay organizations, all existing health facilities can be fully utilized and, by working together, recognize the need, the time and the place for additional facilities which may be better observed as well as more economically offered and administered. In the organization that I happen to represent we were forced to go into a hospitalization plan a few years ago. We went the Blue Cross way. To my mind, one of the greatest benefits that comes to a member is as soon as membership in that plan is established he has somebody close to home that he can go to with his gripes. I think sometimes they get their money's worth by relieving themselves of their gripes.

While the early prepaid plans were successful, including practically all medical service plans, experience has indicated that rural people generally were not ready to pay the premiums for such protection contracts, with the result that development of prepaid rural health care plans progressed slowly. We have felt it preferable to begin operation with restricted contract and expand the services offered as we develop and proceed.

Voluntary prepaid plans may be largely set out in two groups, one known as the insurance group through the insurance way handled by insurance companies. It has its advantages and disadvantages, as I see it. One of the advantages, however, as seen from that standpoint, is this: That the more people that are out talking about it and selling it, so to say, the sooner we are coming to an appreciation on the part of all rural people of the value of that kind of program. In the insurance business, in life insurance and other types of insurance, we have a multitude of companies writing that business. Some companies dislike competition. They don't like to be in competition with one another, but to my mind the thing that has sold life insurance to America is the fact that there were a large number of companies and a large number of agents out talking and selling the insurance plan and we should not object to the competition.

On the other hand is the association plan. In the association plan we have some advantages in the low cost of acquisition, especially as applied to rural people where it's done voluntarily. I think the success of Blue Cross among rural people is attributable very largely to the fact that they go out and do it themselves.

The development of the Blue Cross has given interest to the matter of this prepaid medical care plan. Those who are participating in prepaid hospital plans now know that they are capable of taking care of the problem themselves by putting their health bill on an annual budget basis and prorating the cost on an actuary basis, and with the increase in the per capita that was mentioned earlier this morning, capable in a large way of taking care of their own health needs in a better manner than heretofore.

DR. JAMES R. MCVAY, Vice Chairman, Council on Medical Service, American Medical Association, Kansas City, Mo.: A review of voluntary medical prepayment plans reveals that in their modern concept they are strictly American. The oldest of American plans is the Northern Pacific Railroad Benefit Association, which was organized in 1882 and has operated continuously since that date. Prepayment plans have developed through industrial establishments, universities, consumer and cooperative groups, various governmental units, Blue Cross and medical societies or groups of physicians. In addition, insurance companies have offered various types of health and accident coverage to the public. The medical profession has contributed to the successful operation of all these plans.

Efforts are being made to obtain accurate figures on the number of people covered by these various voluntary prepayment plans. At present any figures must be considered as estimates, as no way has yet been devised to eliminate duplications when people have subscribed to two or more of these plans.

I am indebted to Mr. L. S. Kleinschmidt, Division of Prepayment Plans, Council on Medical Service, for the factual data given in this paper. The closest estimates obtainable today indicate that the total number of persons covered by the various types of voluntary prepayment plans are as follows:

Number of Persons Covered by Voluntary Prepayment Plans

Type of Plan	Total Coverage	Year of Information
Industrial	1,516,000	1945
University student	100,000	1943
Consumer and cooperative	504,000	1943-45
Governmental	580,000	1945-46
Blue Cross	25,000,000	1946
Medical society and physicians groups	5,000,000	
	32,700,000	
Insurance companies, hospitals, surgical, accident and health coverage	44,000,000	
Total	76,700,000	

Progress was slow in the beginning. Expansion of plans as we know them today has occurred largely during the past ten years and the major increase in enrolment in the past three years.

The prepayment plans for medical care received their first impetus as a result of the phenomenal success of the Blue Cross Hospital Service Plans. With both the hospital and the patients in need of some sort of program to ease the burden of hospitalization costs, these plans grew rapidly. Today the term "Blue Cross" is recognized by almost every one in the United States.

Using the earlier experience of prepayment hospital plans as a guide, a number of state medical societies undertook to develop medical care plans. The first statewide plan was the California Physicians' Service, organized in February 1939. Within a year Michigan Medical Service was organized. These two plans, together with the county medical society bureaus of the states of Washington and Oregon, gave the medical profession the necessary experience on which to build what has now become a nationwide movement.

The growth of medical care prepayment plans since 1939 has almost paralleled that of the hospital service plans. It took Blue Cross between five and six years to place thirty-eight plans in operation. This compares favorably with the six years it took to develop thirty-seven medical care plans. The same comparison can be made with reference to enrolment. In their first seven years medical care plans enrolled 2,845,000, while Blue Cross enrolled 2,870,000.

The development of prepayment medical care was in many ways more difficult and complicated than that of hospitalization. Hospital care is a more unified service with relatively few procedures involved, whereas medical care included an almost unlimited variety of services. The problems involved in the payment and handling of claims for medical procedures are far more difficult than those for hospitalization. Years of experi-

menting with various methods has resulted in definite progress toward essentially sound advancement. Hospital care plans deal with a relatively few institutions, whereas medical care plans deal with several hundred or even thousands of doctors. A medical-care plan then to be practical must not rely on a relatively uniform institutional point of view but actually on a host of individual attitudes if we are to retain a high quality of medical care.

The growth of voluntary health care insurance plans since 1939 has been most remarkable. Counting the twenty-eight local plans in Washington and Oregon as two statewide plans, there are now fifty-eight medical care plans sponsored by medical societies or Blue Cross. Plans are now in operation in thirty-three states and are in the process of formation in thirteen more states and the District of Columbia. This leaves but two states, Mississippi and South Carolina, without some development reported to us. The fact that not one of the medical society prepayment plans has failed since 1939 and that the rate of growth has been rapid and steadily increasing attest to the application of common sense and to the desire of the medical profession to have prepayment medical care of a high quality available to all the people.

Methods of Expansion

With the experimental phases of medical care plans well under way, more attention can now be devoted to expansion of enrolment and expansion of benefits with special attention to reaching rural subscribers. The Council on Medical Service has established a Division of Voluntary Prepayment Medical Care Plans which acts as a clearing house of factual information, experiences and successful practices of all operating plans and, by the constant interchange of this information, enables the rapid correction of unsatisfactory practices.

The early plans in Washington and Oregon included practically all medical services, surgery, home and office care and even limitied nursing and dental care. Throughout the years this broad coverage has been continued. The plans organized in 1939 and 1940 followed this lead and also provided for reasonably complete medical care. In contrast to the experience in the Northwestern states, the experience of the latterly formed plans with full coverage was unsatisfactory. It was found that the public would not pay the premiums necessary to carry out such a broad contract. Whenever a surgical contract plus a general medical care contract was offered to the public, the ratio of enrolment was more than 100 to 1 in favor of the surgical program. As a result the plans have generally preferred to begin operations with fairly restricted coverage such as surgical care, obstetric, x-ray and anesthesia in hospitalized cases. Now most of the services necessary in cases so severe as to require hospitalization are covered.

The tendency to limit services to those performed in the hospital is a natural one. In the first place most of the costly illnesses are those that require hospitalization. Secondly, there is going to be little abuse of such services. Thirdly, the actuarial experience in hospitalized cases is sufficient to provide plans with a more certain basis for determining adequate premiums. A recent study of fifty-one medical service plans shows that thirty-four of the plans offer surgical services, obstetric and specified medical services in the hospital. This same study shows that plans are continuing to expand benefits. Twelve of the plans provide for general medical care, such as home and office calls, and five plans provide almost complete coverage. The average premium for a single subscriber is approximately $1.25 and ranges from as little as 60 cents to $4.85 a month. Family coverage ranges from $1.35 to $10 a month, with an average of about $3.

Plans are still experimenting with benefits and premium rates. As one plan succeeds in some new idea, the basis for this success is made available to other plans. The same, of course, is true of failures. In this manner vertical expansion will continue to grow as actual experiences and public demand indicate.

Reviews of experience in rural areas have indicated that with the facilities available the rate of use under prepayment is higher than in the cities. The accumulation of physical defects and of chronic illness is greater. The risk of accidents is greater. Farmers are not usually covered by workmen's compensation insurance. All injuries and illnesses automatically come within the scope of the prepayment plan.

The success of a plan offering general medical coverage depends on meeting the people's need for medical care with proper control of abuses and on the maintenance of the costs at a point consistent with adequate standards of service and at premiums salable to rural subscribers. It is the job of the medical profession to keep its members informed. So too it is the job of the enrolling groups, whether they are factory, farm or community, to prevent the abuse of the benefits of the plans by their members. Equal interest in determining both coverage and premiums on a local basis should facilitate answers as to what additional medical serivces are needed, what the subscribers will pay and what the plan charge must be to remain financially sound.

Horizontally, the expansion of the prepayment medical care program is limited only by the ability and willingness of the public to enroll as subscribers. It is true that most of the plans have tended to concentrate on urban areas where large group enrolments were possible. This was a sound method because the sooner the plan obtains an adequate risk spread the sooner it can expand its benefits and enrolment program. Large group enrolment provides this spread more easily and with less acquisition cost. However, the pattern is now changing and, having reached a reasonable enrolment and a sound financial level, ways and means of reaching all population groups—particularly the rural—are being explored. In general, the pattern has not been to deal with the farm group as a separate problem but to include it in what is called community enrolment. In community enrolment the farmer is considered a part in the area encircling a town or village. Usually the town is the center for trading. The whole community then becomes a group with premium payments payable at some central place.

A Method for Proceeding

A successful Blue Cross enrolment campaign in rural areas was carried out in Colorado by the Weld County Agricultural Health Association. Enrolment was on a community basis, reaching all elements of the community as a civic service. Weld County, the largest county in Colorado, is about three times the size of Rhode Island and has a population of 63,700. Greeley is the largest town in the county, with 15,900 population, and there are several smaller towns. Prominent businessmen, farm organization leaders and various club leaders met with the Blue Cross representatives and decided to form a health association under the Colorado law governing cooperatives. Twelve directors, each representing a definite district in Weld County, govern the health association. This division provided workable units in size and population for an enrolment and administrative program. Enrolment was not limited to Blue Cross, but each district was allowed to enroll separately in the Colorado Medical Service plan whenever 50 per cent or more of the families in the district had subscribed to the Health Association. To date Weld County has 8,000 participants enrolled. Colorado has organized ten other similar county health associations and thus far has enrolled one in every six persons in rural areas and one out of every two urban residents.

Iowa has organized fifty-five similar county health improvement associations. Other states are enrolling on a similar community basis with less formal organization.

Voluntary prepayment plans are growing rapidly in rural areas. A survey of Blue Cross rural enrolment reported in November 1946 by the Blue Cross Commission shows an increase of 200 per cent since 1944. The study shows a total of 1,637,533 subscribers and dependents now as compared with 500,000 rural members in 1944.

Many medical care plans have developed their organizations to the point where rural enrolment is being carried on or plans are being made by those reaching into rural areas. A study of these plans now under way indicates that about one half of those doing rural enrolment, twelve plans, have reported 304,542 subscribers and dependents. It is estimated that the study, when completed, will show medical care plans in a

position comparable with Blue Cross of two years ago—or a half million rural members.

The problem cannot be solved at a national level. It must, to be successful, be worked out in the community where the need exists. There must be developed a community responsibility which will lend its active support if any effort is to succeed.

Continuing improvements in transportation and extension of better roads will accelerate the growing tendency of rural people to bring the patient to the physician. Thus the physician's care and the use of other health facilities can be extended over an area that includes a sufficient number of people to meet the costs of the services provided.

Use of the Insurance Principle

A study of the fees for medical services rendered by the rural practitioners shows that they are not excessive. However, there are times when illnesses strike and the severity of the cases cannot be predetermined. For this reason many farm families faced with severe illness find it difficult to meet the full costs from their income. This problem of meeting the costs is basically the same as it is with people living in towns. The only sound method so far devised is through the use of the insurance principle we have described. Prepayment medical care plans available to all people of a community, townspeople and farmers alike, tend to spread the risk and distribute the costs. Thus, having the cost known in advance, proper planning and budgeting for these otherwise unpredictable costs is possible.

Families or individuals unable to pay the full costs of medical care from their incomes and those now receiving public assistance should be called on to pay for their own medical care as far as is consistent with their incomes and provision made through locally administered public funds to pay the balance of the premium required to participate in a prepayment plan. Every effort should be made to help and not to pauperize or regiment the most individualistic element of our social economy—the American farmer.

The problem of the lower income groups can be solved by local communities and state actions in line with the rapidly developing voluntary prepayment medical care movement.

Division of Responsibility

Who carries the responsibility for the medical care program? The physicians because of their special training cannot escape the responsibility for the professional aspects of the program. Experience has shown that they do not want to. The recipients of the medical service (the people) cannot escape the responsibility of paying the costs of the services. Both should do their full share in providing the needed facilities. With full cooperation of the medical profession and the people, working in mutual confidence, a medical care program can succeed by undertaking the various types of medical service one step at a time. As experience is gained, additional types of medical care can be included. Coverage may be as complete as is desirable in any community. Progress can be as rapid as experience indicates and the economic situation permits.

For ten years or more doctors have operated experimental plans in medical care insurance. On the basis of this experience they now feel ready to recommend prepayment plans to the people. The Council on Medical Service created by the House of Delegates of the American Medical Association has as one of its primary functions the fostering and developing of prepayment plans. The American Medical Association has rural health committees devoting their attention to the rural problem as do the various state medical associations.

It Can Be Done

Local representatives of farm organizations such as those present here today, together with business groups and local medical societies working in full cooperation and mutual confidence and understanding, are now in a position as never before to work out this heretofore difficult phase of delivering medical care to all the people. And unfettered by the totalitarian ideologies of the Old World we will continue to be "America, the land of individual opportunity."

(To be continued)

Medical Legislation

MEDICAL BILLS IN CONGRESS

Department of Health, Education and Security

A bill introduced by Senator Aiken, Vermont, S. 712, proposes to constitute the Federal Security Agency **a Department of Health, Education, and Security.** The Department will be administered by a Secretary appointed by the President by and with the advice and consent of the Senate and there will be an Under Secretary and two Assistant Secretaries, also appointed by the President by and with the advice and consent of the Senate. The bill does not prescribe the qualifications to be possessed by either the Secretary, the Under Secretary or the two Assistant Secretaries.

Diseases of the Heart and Arteries

Senator Pepper, Florida, has introduced S. 720, requesting the President to mobilize at some convenient place in the United States an adequate number of the world's outstanding experts and coordinate and utilize their services "through the Surgeon General of the United States" or through an independent group appointed by him and build clinical and laboratory research facilities, in a supreme endeavor to discover means of preventing, treating and curing **diseases of the heart and arteries.** According to the bill, such diseases now kill 587,314 people a year in the United States, and cause disability to 7,840,000 more. An appropriation of $100,000,000 would be authorized to enable the President to carry out the purposes of the legislation.

Health of School Children

Senator Morse, Oregon, by S. J. Res. 66, would authorize the Secretary of Labor, acting through the Children's Bureau "of the Department of Labor," in cooperation with Federal, State and local agencies and qualified institutions of higher education to (1) make studies of the **health and physical status of children of school ages;** (2) make studies of the facilities and services offered by schools for the correction of physical defects of children of school ages; and (3) recommend the use of, and demonstrate in representative urban and rural areas, methods of conducting school health examinations and providing school health services. For the purpose of defraying the expenses of the Department of Labor in carrying out the provisions of the joint resolution and providing funds for direct grants by the Secretary of Labor to State departments of health, State departments of Education, and qualified institutions of higher learning, there will be authorized to be appropriated $100,000 for the fiscal year ending June 30, 1947 and $450,000 for each of the succeeding fiscal years.

Miscellaneous

H. R. 2045 has passed the House and Senate, amending the Federal Food, Drug and Cosmetic Act by providing for the certification of batches of drugs composed wholly or partly of any kind of **streptomycin or any derivative thereof.**

By H. R. 1811, introduced by Representative Boggs, Louisiana, it is proposed that dispensary treatment and hospitalization in Army and Navy hospitals be provided for **retired enlisted men** of the Army, Navy, Marine Corps, and Coast Guard.

S. 459 has passed the Senate in an amended form, providing that no person shall be discriminated against under **the Civil Service Act** because of any physical handicap provided his or her employment will not endanger the health or safety of fellow employees.

The establishment of **a veterans' hospital** in southeastern Alaska is proposed by H. R. 1880, introduced by Representative Hagen, Minnesota.

STATE LEGISLATION

Arizona

Bills Introduced.—S. 119 proposes the enactment of a **hospital survey and construction act** requiring a statewide survey of hospital facilities and the preparation of a program for the construction of additional needed facilities. The superintendent of public health is authorized to apply for federal aid in survey and planning activities, and the state department of health is appointed as the state agency to conduct the survey and develop the state plan. S. 120 proposes the enactment of a **hospital licensing law** and the establishment of a hospital advisory council.

Arkansas

Bills Introduced.—H. 92 and S. 301 propose that all persons applying for **a marriage license** shall present a certificate signed by a licensed physician stating that such applicant is free from venereal disease. S. 308, to amend the medical practice act, proposes to **eliminate the homeopathic board of examiners.**

Bills Enacted.—H. 18 has become Act No. 71 of the Acts of 1947. It requires every physician, at the time of the first examination, to take or cause to be taken a sample of the blood of a **pregnant woman** and to submit the same to an approved laboratory for a standard serologic test for syphilis. H. 109 has become Act. No. 85 of the Acts of 1947.

It is a hospital survey and construction act providing for a **survey of hospital facilities** in the state and the preparation of a program for the construction of additional needed facilities. The law requires the appointment of an advisory hospital council and authorizes the state board of health to apply for and accept federal funds for assistance in state survey or construction plans.

California

Bills Introduced.—A. 2243, to amend the law relating to nonprofit **corporations operating hospitals,** proposes that such corporations claiming tax exemption or other benefit on the ground that it is nonprofit shall admit to any hospital operated by or under the control of the corporation any person in need of its facilities whose admission is requested by any person holding a valid and unrevoked physician's and surgeon's certificate issued under the provisions of the business and professions code. A. 2279, to amend the business and professions code relating to applications of **commissioned medical officers,** proposes that such applicants shall be granted a license to practice on filing an application on a form prepared by the board. A. 2307 proposes certain regulations prohibiting **the vivisection of animals** and withdrawing the exemption from such provisions of properly conducted scientific experiments or investigations performed under the authority of the faculty of a regularly incorporated medical college or university of the state. S. 1278 proposes to authorize the board of medical examiners to examine and license persons desiring to **practice physical therapy** and defines a physical therapy technician or physiotherapy technician as a person who undertakes or represents himself as able to treat or to alleviate ailment, deformity, fatigue, human disease, injury, obesity, pain or any other physical or mental condition by the use of massage, therapeutic massage, exercise, therapeutic exercise or by the use of the physical, chemical and other properties of electricity (except x-rays, radium and electrosurgery), heat, light or water. S. 1469 proposes general regulations for the licensing and regulating of health insurance and service plans.

Colorado

Bill Introduced.—H. 895 proposes to appoint the Colorado State Department of Public Health as the sole agency for carrying out the purpose of the **federal hospital construction act** and to require the governor to appoint a state advisory hospital council.

Connecticut

Bill Introduced.—S. 742 proposes to authorize **injured employees** at all times to select a physician or hospital of their own choice.

Georgia

Bills Introduced.—S. 48 proposes to require both **applicants for a marriage license** to present a certificate signed by a regular physician licensed to practice medicine in the state of Georgia certifying that no clinical evidence of syphilis has been found and that the applicant is not infected with such disease in a stage in which it may become communicable to the marital partner. H. 249 proposes that the curriculum of all high schools in the state supported wholly or in part by public funds shall contain **a course in sex hygiene** to be taught in the last two high school grades.

Idaho

Bills Passed.—H. 141 passed the senate February 26. It proposes to add **cancer** to the list of diseases which a physician must immediately report to the department of public health. H. 144 passed the senate February 27. It proposes to limit the sale of **barbituric acid** or compounds to sale on prescriptions signed by a person licensed to prescribe or administer barbiturates. The prescription would not be refillable unless specifically designated on the prescription. S. 55 passed the senate February 27. It proposes a **hospital licensing law.** This proposal was amended in the senate on February 24 by proposing to exempt from such licensing requirements any supervision, regulation or control of the remedial care or treatment of residents or patients in any home or institution conducted for those who rely on treatment by prayer or spiritual means in accordance with the creed or tenets of any well recognized church or religious denomination, except as to sanitary and safe conditions of the premises, cleanliness of operation and its physical equipment. S. 102 passed the senate February 27. It proposes the enactment of a state **hospital survey and construction act** requiring a statewide survey of hospital facilities and the preparation of a program for the construction of additional facilities. The proposal would also require the appointment of an advisory hospital council and would authorize the commissioner of the state department of public health to apply for and accept federal funds to assist the state in survey and construction activities.

Indiana

Bills Passed.—H. 450 passed the house February 27. It proposes to provide for the licensing, inspection and regulation of **nursing homes.** S. 1 passed the house February 25. To amend the law relating to **hospital surveys,** it proposes to appoint the state board of health as the state agency to cooperate with the federal government in the construction of hospitals within the state and proposes to add to the hospital survey law a new section defining the terms "hospital," "public health center" and "nonprofit hospital."

Iowa

Bills Introduced.—H. 357 proposes the creation of a state **board of naturopathic examiners** and proposes "'Naturopathy,' which includes all forms of physiotherapy, is that system of the healing arts which means 'Nature cure or health by natural methods' and is defined as 'the prevention, diagnosis and treatment of human injuries, ailments and diseases by means of any one or more of the psychological, physical or mechanical, chemical or material, forces or agencies of nature'." S. 397 proposes a law for the licensing, inspection and regulation of hospitals.

Kansas

Bill Introduced.—H. 308, to amend the law relating to the **licensing of osteopaths,** proposes that they shall have received at least two terms of nine months each of preprofessional training and proposes to extend the scope of osteopathic practice to include the right to use and prescribe narcotics.

Maine

Bills Introduced.—S. 293 proposes to authorize local health officers to annually provide for the **free vaccination** of all inhabitants within his jurisdiction and to provide for free inoculation against diphtheria and whooping cough of all children under 12 years of age. S. 335 proposes an enabling act for the formation of **medical service plan corporations.**

Maryland

Bills Introduced.—H. J. R. 8 proposes the appointment of a committee to study the need for hospital facilities exclusively for the treatment of **rheumatic fever** and to make recommendations therefor. S. 209 proposes the granting of **free scholarships** to the University of Maryland school of medicine.

Massachusetts

Bill Introduced.—H. 1361 proposes regulations governing the right **to engage in animal experimentation.** The proposal makes no exception in favor of hospitals or medical schools but they too must obtain the necessary certificate from the commissioner of public safety.

Minnesota

Bills Introduced.—H. 878 proposes a law relating to the incorporation of voluntary nonprofit **medical care corporations.** H. 882 proposes to prohibit **hospital employees** of a charitable hospital from encouraging, participating in or causing any strike or work stoppage against or directly involving such charitable hospital.

Missouri

Bill Introduced.—H. 132 proposes a new law relating to the licensing, regulation and supervision of **maternity hospitals.**

Montana

Bills Passed.—H. 235 passed the house February 21. It proposes a law for the licensing and regulating of **hospitals within the state.** A house amendment of February 14 added to the proposal the requirement that no person operating a hospital shall in any manner or by any device discriminate between the patients of any regularly licensed physician for or on any ground or reason whatever, including the fact that such physician is not a member of the medical or surgical or other staff, clinic or internal instrumentality of the hospital. An amendment of February 18 in the house exempted Christian science institutions from the operation of the proposal. H. 236 passed the house February 21. It proposes the enactment of a Montana **Hospital Survey and Construction Act** requiring a survey of hospital and health facilities in the state, a program of construction for additional needed facilities, the appointment of an advisory hospital council and the necessary cooperation for the receiving of federal funds to aid in the construction of such additional needed facilities as the program may require.

New Hampshire

Bill Introduced.—H. 370 proposes the enactment of **a hospital survey and construction** act requiring a survey of hospital facilities within the state and the preparation of a program for the construction of additional needed facilities. The proposal also requires the appointment of an advisory hospital council and authorizes the state board of health to apply for and accept federal funds for assisting the state in its hospital program.

Bill Passed.—S. 19, to amend the law relating to **medical service corporations,** passed the senate February 26. It proposes to authorize the members of the board of trustees or directors of the medical service corporations in the state to be members of the Vermont Medical Society and residents of Vermont.

New Jersey

Bill Introduced.—S. 66 proposes to appoint the state department of institutions and agencies as the agency **to receive federal funds** to assist in a state survey of hospitals and the development of a state program for the construction of additional needed facilities.

New Mexico

Bill Passed.—S. 80, to amend the law relating to **osteopathic physicians,** passed the senate February 24. It was previously reported as proposing to eliminate therefrom the requirement that no plan for rendering medical services shall be adopted by any state, district, county, city or town which discriminates against osteopathic physicians and surgeons. This proposal was amended in the senate on February 24 by proposing the insertion of the words "and no plan, program or other matter shall be approved by any state, district, county, city or town official which discriminates against osteopathic physicians and surgeons; provided, however, that this section shall not be construed to affect any plan, program or other matter concerning the operation or maintenance of any

hospital or other institution or fraternal group or organization, provided, however, if the presence of any osteopathic physician on the staff of any tax supported hospital will under federal law or regulation prevent such hospital from receiving any federal funds, the governing authority of such hospital will have the power to remove all osteopathic physicians from the staff of such hospital."

North Dakota

Bills Passed.—H. 52 passed the house February 19. It proposes to amend the law relating to hospitals by setting up rules and regulations for the **licensing of maternity homes** and maternity hospitals. H. 127 passed the house February 13 and the senate February 28. It proposes regulations for the licensing of **chiropractic hospitals** by the state board of chiropractic examiners. S. 38 passed the huose February 26. It proposes to require every physician or other person authorized by law to practice obstetrics, who attends **a pregnant woman** for conditions relating to pregnancy, to take or cause to be taken a sample of blood of such woman at the time of the first professional visit and to submit such sample to an approved laboratory for a standard serological test for syphilis.

Ohio

Bills Introduced.—H. 136, to amend the medical practice act, proposes to exempt therefrom practitioners of the **Christian science church** who attempt to treat human ills through prayer alone. H. 280 proposes to limit the **sale of barbiturates** to sale by a pharmacist on prescription of a licensed practitioner or sale by the practitioner in the course of his own practice. S. 165 proposes the creation of a **board of chiropractic examiners** and defines chiropractic as "the art and science of locating, the procedure preparatory to adjusting, and the adjusting by hand of the subluxations of the articulations of the spinal column, which is deemed to be the twenty-four movable vertebrae, including the sacrum and coccyx and adjacent tissues, for the purpose of removing any interference with nerve transmission; but it shall not include surgery nor the administration or prescription of any drug included in materia medica, and it shall not be deemed to be a branch of the practice of medicine or surgery within the meaning of section 1286 of the General Code, or of section 12694 of the General Code; neither shall it be deemed to be the practice of osteopathy, obstetrics, optometry, dentistry, chiropody nor any limited branch of medicine or surgery, other than chiropractic, as designated in section 1274-1 of the General Code."

Oklahoma

Bill Introduced.—S. 122 proposes the enactment of a **mental health law.**

Bill Passed.—H. 159 passed the house February 24. It proposes to require various practitioners of the healing art to **list descriptive letters after his name** in order to designate the branch of practice in which he engages.

Oregon

Bill Introduced.—S. 356 proposes to prohibit any discrimination against a person because he has purchased **prepaid medical insurance** or similar services.

Pennsylvania

Bills Introduced.—H. 153 proposes to provide for the examination and **licensure of masseurs** and defines the occupation of masseur as "the massaging of the human body through the use of manual therapy." S. 108 proposes an appropriation to the trustees of the Pennsylvania state College for the establishment of a **state medical college.**

South Carolina

Bill Introduced.—H. 24, to **amend the marriage law,** proposes to require each applicant for a marriage license to present a certificate signed by a duly licensed physician of his state certifying that such person is of sound mind and is free from venereal disease.

South Dakota

Bills Passed.—H. 50 passed the house February 24. It proposes the enactment of a South Dakota **hospital survey and construction act.** A house amendment of February 21 would require any institution accepting federal funds for construction purposes to first agree that it will not discriminate between practitioners of the various healing arts and every duly licensed doctor of medicine, osteopathic physician and chiropractor shall have the right to and shall be entitled to practice his profession in any such hospital which has received federal funds. H. 302 passed the senate February 28. To amend the **basic science act,** it proposes to exempt therefrom any one who has served as a medical officer in World War II. S. 184 passed the senate February 27. It proposes to prohibit the **sale of barbiturates** except on the original prescription of a practitioner, which the proposal defines as a person licensed by law to prescribe and administer barbiturates.

Tennessee

Bills Enacted.—H. 232 was approved February 7. It provides for the regulation and **licensing of all hospitals** within the state. S. 153 has become chapter 16 of the Public Acts of 1947. It is a **hospital survey and construction act** providing for a statewide survey of hospital facilities and the preparation of a program for the construction of additional needed facilities. The commissioner of the state department of health is authorized to receive federal funds in behalf of applicants desiring to construct additional facilities and to transmit them to such applicants after their plans have been approved.

Vermont

Bill Introduced.—H. 164 proposes an appropriation for the continued maintenance of the Vermont **blood plasma bank.**

Washington

Bills Introduced.—H. 285, to amend the law relating to **county and other government hospitals,** proposes to authorize such hospitals to be members of and maintain membership in any local, state or national group or association organized and operated for the promotion of the public health and welfare or the advancement of the efficiency of hospital administration and in connection therewith to use tax funds for the payment of dues and fees. H. 297 proposes a survey for the discovery, treatment, hospitalization, education and training of persons afflicted with **cerebral palsy** and the appointment of a committee to make such a survey. H. 378 proposes to require **applicants for a license to practice** medicine and surgery to have graduated from a medical school accredited and approved by the Association of American Medical Colleges and the Council on Medical Education and Hospitals of the American Medical Association. H. 454 proposes to **authorize optometrists** to render expert testimony in court relative to the diagnosis of the human eye or any refractive muscular or anatomic condition thereof.

Bills Passed.—S. 158 passed the senate February 21. It proposes the creation of **a medical disciplinary board** to hear complaints for the revocation of professional licenses. S. 216 passed the senate February 26. It proposes the enactment of a **hospital licensing law.**

West Virginia

Bills Enacted.—H. 9 was approved February 25. It amends the medical practice act by exempting therefrom the practice of the **religious tenets of any church** in the ministration to the sick or suffering by mental or spiritual means, provided sanitary and public health laws are complied with and provided no practices shall be used which may be dangerous or detrimental to life or health and further that no person shall be denied the benefits of accepted medical and surgical practices. H. 13 was approved February 25. To amend the **law relating to autopsies,** it provides that a coroner or justice shall not, without the consent of the prosecuting attorney, authorize an autopsy or chemical analysis on a dead body unless the justice or coroner has first obtained the consent in writing of the next of kin, and the cost shall be paid by the county court on the order of the prosecuting attorney. This provision would not be applicable, however, where the prosecuting attorney reasonably believes that an unlawful act has been committed.

Washington Letter

(From a Special Correspondent)

March 13, 1947.

Hawley Warns Medical Work Periled by Lack of Funds

Until Congress grants a deficiency appropriation, the Veterans Administration is without funds to carry on medical work, Dr. Paul R. Hawley, the agency's medical chief, told a panel discussion on veterans' hospitals conducted by the American Legion Conference on Veteran Rehabilitation. Dr. Hawley informed the 500 delegates that future activities depend on a deficiency grant to carry the administration through next June. He explained rapid demobilization of the armed forces was responsible for the medical division's funds running out. Representative Taber of New York, appropriations committee chairman, recently led the fight to have the $600,000,000 deficiency appropriations request for administration purposes cut to $180,000,000 pending further study. Colonel F. H. Dryden, Veterans Administration assistant administrator for construction, defended the agency against charges of unnecessary delay in hospital building. He said the program is going ahead as rapidly as costs and facilities will allow.

Allocation of Streptomycin to Veterans' Administration Increased

The March allocations of streptomycin to the Veterans Administration was increased to 28,500 Gm. from the October 7,500. The Civilian Production Administration reports the total initial U. S. allocation for the month was 410,625 Gm. as compared with the 325,225 Gm. initially released in February. The allocation is apportioned as follows: armed service, 30,000 Gm.; other government agencies, 30,000; chemical research, 18,945; tuberculosis research, American Trudeau clinical program, 9,000; for civilian use 322,700 Gm., of which 75,000 is for export.

World Health Constitution Expected to be Ratified

Surgeon General Thomas A. Parran of the U. S. Public Health Service told an audience in the Federal Security Auditorium here that "only a handful" of nations (not including the United States and the Soviet) had already ratified the constitution for a world health organization signed by 61 of the 63 nations at last summer's conference in New York. He added that ratification by all was anticipated. Dr. Parran declared that air travel had wiped out barriers of time and space once protecting America from diseases of far-off lands. "The only effective protection we have in this country against the spread of epidemics is to help stamp out diseases wherever they occur throughout the world," he said.

Russians Reported Training 1,980,000 Technicians in Five Years

Soviet publications released here disclose that Russia's five year plan for science includes the training of 1,280,000 technicians and 700 laboratory specialists having scholastic degrees. The Soviet is making a tremendous effort to recover from wartime losses of research equipment and personnel. Research in medicine as well as atomic energy and other subjects is being covered. Special inducements offered Russian scientists are extra rations, housing, cash and honorary awards. German scientific personnel is also being extensively used.

House Members Criticize Research Phase of Armed Forces Merger

Although Congress is expected to agree to the main provision of President Truman's armed forces merger plan, House members have criticized provisions for military research and procurement divisions. They contend that research should be open to civilian scientists as well as servicemen and there should be greater standardization of Army-Navy purchasing. Representative James W. Wadsworth, Republican of New York, said he would like to see the research and procurement phases "strengthened to the point where they are geared for the highest measure of performance."

200,000 Americans Are Potentially Unemployable Each Year Through Disablement

Mrs. Walter Bloedorn, chairman of the fund advisory committee, Washington Committee for Civilian Rehabilitation, stated modern medicine and rehabilitation agencies are neglecting 200,000 Americans each year who become potentially permanently unemployed through disablement.

Doctor Makes Mercy Flights Piloting His Own Plane

Dr. William W. Welsh, of Rockville, Md., makes mercy flights in his own small airplane. His latest act of mercy was to fly with a local pilot to a remote section of Montgomery County to drop sulfonamide drugs at a farmhouse where a child was ill with pneumonia.

Funds Required for Study of Aphthous Fever in Mexico

An investigation of aphthous fever, the human counterpart of foot and mouth disease, will be conducted in Mexico if funds are available, say Public Health service officials. They are anxious to make the study because of the serious cattle plague and lack of knowledge of the human side of it.

Senate Gives Red Cross Chapters Greater Voice in Affairs

The Senate has passed a bill, now before the House, which gives local chapters of the American Red Cross a greater voice in local affairs and amends the law incorporating the Red Cross to increase the board of governors from 18 to 50, of whom 30 would be elected by the chapters.

United States Blocks the Shipment of Drugs to Cuba

Narcotics commissioner Harry J. Anslinger banned shipments of narcotics to Cuba after it was learned that Charles Luciano, New York racketeer deported to Italy, had taken up residence in Havana. The United States is the principal supplier of drugs to Cuba, solely for medicinal use. It was feared that Luciano might cause the diversion of the narcotics to illegal uses. The ban was lifted after Cuban authorities took Luciano into custody and arranged for his return to Italy.

Doctor Ties for Third Place in Bridge Championships

Dr. A. J. Steinberg of the District of Columbia tied for third place in the Worlds Masters Individual Bridge Championships, held in New York. He played against 65 other contract experts and lacks only six cumulative points of winning the Life Masters rating, highest rank conferred by the American Contract Bridge League.

Coming Medical Meetings

Alabama, Medical Association of the State of, Birmingham, April 14-16. Dr. Douglas L. Cannon, 519 Dexter Ave., Montgomery 4, Secretary.

American Association for the Study of Goiter, Atlanta, Ga., April 3-5. Dr. Thomas C. Davison, 478 Peachtree St., N. E., Atlanta 3, Secretary.

American Association of Anatomists, Montreal, Canada, April 3-5. Dr. Normand L. Hoerr, 2109 Adelbert Road, Cleveland 6, Secretary.

American Association of Industrial Physicians and Surgeons, Buffalo, N. Y., Statler Hotel, April 26-May 4. Dr. Frederick W. Slobe, 28 E. Jackson Blvd., Chicago 4, Secretary.

American College of Physicians, Chicago, April 28-May 2. Mr. E. R. Loveland, 4200 Pine St., Philadelphia 4, Secretary.

American Laryngological Association, St. Louis, April 23-24. Dr. Arthur W. Proetz, 12 Westmoreland Place, St. Louis 8, Secretary.

American Laryngological, Rhinological and Otological Society, St. Louis, April 25-26. Dr. C. Stewart Nash, 288 Alexander St., Rochester 7, N. Y., Secretary.

American Otological Society, St. Louis, April 21-22. Dr. Gordon D. Hoople, 713 E. Genesee St., Syracuse 2, N. Y., Secretary.

American Society for Clinical Investigation, Atlantic City, Chalfonte-Haddon Hall, May 5. Dr. Eugene A. Stead Jr., Grady Hospital, Atlanta 3, Georgia, Secretary.

American Society for Research in Psychosomatic Problems, Atlantic City, May 3-4. Dr. Edwin G. Zabriskie, 714 Madison Ave., New York 21, Secretary.

Arizona State Medical Association, Tucson, May 7-10. Dr. Frank J. Milloy, 112 N. Central Ave., Phoenix, Secretary.

Arkansas Medical Society, Little Rock, April 17-19. Dr. William R. Brooksher, 602 Garrison Ave., Fort Smith, Secretary.

Association of American Physicians, Atlantic City, May 6-7. Dr. Joseph T. Wearn, Lakeside Hospital, Cleveland 6, Secretary.

California Medical Association, Los Angeles, Hotel Biltmore, April 30-May 3. Dr. L. Henry Garland, 450 Sutter St., San Francisco 8, Secretary.

Connecticut State Medical Society, New Haven, April 28-30. Dr. Creighton Barker, 258 Church St., New Haven 10, Secretary.

Dallas Southern Clinical Society, Dallas, Texas, March 17-20. Dr. Glenn D. Carlson, 1133 Medical Arts Bldg., Dallas, Secretary.

Florida Medical Association, Miami, April 20-23. Dr. Robert B. McIver, P. O. Box 1018, Jacksonville, Secretary.

Georgia, Medical Association of, Augusta, Bon Air Hotel, April 22-25. Dr. Edgar D. Shanks, 478 Peachtree St. N. E., Atlanta, Secretary.

Hawaii Territorial Medical Association, Lihue, Kauai, May 1-4. Dr. Harry L. Arnold Jr., 510 S. Beretania St., Honolulu 53, Secretary.

Iowa State Medical Society, Des Moines, April 16-18. Dr. John C. Parsons, 406 Sixth Ave., Des Moines 9, Secretary.

Maryland, Medical and Chirurgical Faculty of, Baltimore, April 22-23. Dr. W. Houston Toulson, 1211 Cathedral St., Baltimore 29, Secretary.

Mid-Atlantic Section, American Urological Association, Washington, D. C., Hotel Statler, March 20-22. Dr. Theodore R. Fetter, 255 S. 17th St., Philadelphia, Secretary.

Mississippi State Medical Association, Biloxi, May 6-8. Dr. T. M. Dye, Box 295, Clarksdale, Secretary.

Missouri State Medical Association, Kansas City, March 30-April 2. Mr. Thomas R. O'Brien, 634 N. Grand Blvd., St. Louis 3, Executive Secretary.

Nebraska State Medical Association, Omaha, April 28-May 1. Dr. R. B. Adams, 416 Federal Securities Bldg., Lincoln 8, Secretary.

New Jersey, Medical Society of, Atlantic City, Haddon Hall, April 22-24. Dr. Alfred Stahl, 160 Lincoln Ave., Newark 4, Secretary.

New Mexico Medical Society, Albuquerque, April 30-May 3. Dr. H. L. January, 221 West Central Ave., Albuquerque, Secretary.

New York, Medical Society of the State of, Buffalo, May 5-9. Dr. Walter P. Anderton, 292 Madison Avenue, New York 19, Secretary.

North Carolina, Medical Society of the State of, Virginia Beach, Va., Cavalier Hotel, May 12-14. Dr. Roscoe D. McMillan, P. O. Box 232, Red Springs, Secretary.

Northern Tri-State Medical Association, Detroit, April 8. Dr. John L. Stifel, 232 Michigan St., Toledo 2, Ohio, Secretary.

Ohio State Medical Association, Cleveland, May 6-8. Mr. Charles S. Nelson, 79 E. State St., Columbus 15, Executive Secretary.

Oklahoma State Medical Association, Tulsa, Mayo Hotel, May 14-16. Mr. R. H. Graham, 210 Plaza Court Bldg., Oklahoma City, Executive Secretary.

Southwest Allergy Forum, Shreveport, La., March 31-April 1. Dr. Sim Hulsey, 505 Medical Arts Bldg., Fort Worth, Texas, Secretary.

Tennessee State Medical Association, Memphis, April 8-10. Dr. W. M. Hardy, 706 Church St., Nashville 3, Secretary.

Texas, State Medical Association of, Dallas, Adolphus Hotel, May 5-8. Dr. Holman Taylor, 1404 W. El Paso St., Fort Worth 3, Secretary.

GOVERNMENT SERVICES

ARMY

HEARINGS ON MEDICAL SERVICE CORPS BILL

Hearings began in February on H. R. 1982, a bill proposing to establish a Medical Service Corps in the Army Medical Department, consisting of the Pharmacy Section, Optometry Section, Medical Allied Science Section and such other sections as the Secretary of War may deem necessary. The Surgeon General, Major Gen. Norman T. Kirk, pointed out in connection with the first hearing on the bill that preservation of health in conservation of the strength of the military forces entails the performance of numerous duties which do not require the application of professional technical training in medicine, dentistry or veterinary medicine. These duties, such as certain phases of medical supply, personnel management, laboratory investigation, psychiatric social work, clinical psychology and sanitary engineering, can be performed adequately by scientific specialists and skilled administrative personnel.

It is proposed to establish in the Medical Department of the Regular Army a Medical Service Corps with a Reserve component which will be composed of pharmacists, sanitary engineers, optometrists, psychologists, bacteriologists, business administrators and officers of similar skill, all of whom have served with the Medical Department. Experience during World War II demonstrated the advisability of including these scientific and highly trained specialists of the Medical Department in a single corps. General Kirk indicated that on the basis of needing a thousand officers in the Medical Service Corps, 60 per cent would be in the Pharmacy Corps, 38 per cent in the Allied Sciences Corps and 2 per cent in the Optometry Corps.

MICROFILM SERVICE AVAILABLE TO PHYSICIANS

The Army Medical Library, through its photoduplication services, supplied millions of pages of microfilmed medical articles to the armed services and other research agencies during the war. The principle of immediate aid direct to the user, wherever he might be, introduced a new technic to assist medical research. This service is now generally available for civilian physicians, institutions and research workers on a cost basis. This means direct access to the library's enormous resources of medical literature.

A fee of 50 cents is charged for filming any periodical article in a single volume, regardless of length. Microfilming from monographs is furnished at 50 cents for fifty pages or fraction thereof. Photostats are also available at a charge of 50 cents for each ten pages or fraction thereof. Material filmed is not for reproduction without permission of the copyright owner.

To keep costs down, a coupon system has been established. Users may buy any quantity of photoduplication coupons at 50 cents each. Order blanks are available on request. Checks should be made payable to the Treasurer of the United States and sent to the Army Medical Library, 7th Street and Independence Avenue S.W., Washington 25, D. C.

ARMY OCCUPIES ST. LUKE'S HOSPITAL IN TOKYO

The U. S. Army 49th General Hospital now occupies the widely known St. Luke's Hospital in Tokyo, serving the medical needs of the occupational personnel in Japan. St. Luke's Hospital was an American institution open to all races and creeds and was founded in 1884 under the auspices of the Episcopal Church. One of the first hospitals to have a full time staff receiving fixed salaries, it was successful and grew in size until in 1923, when an earthquake ruined the buildings. A new permanent hospital with 225 beds was erected the next year. In 1925 two thirds of the new buildings were destroyed by fire. With contributions by both Japanese and Americans a fireproof modern building then was erected. A million dollar contract was signed in 1928 for the first two units, and the cornerstone was laid on March 5, 1930. The school of nursing was authorized by the Imperial Government as a college in 1927. Later the Rockefeller Foundation gave the school a $400,000 endowment. When the American troops occupied Japan, the 42d U. S. Army General Hospital, brought from Manila, moved into St. Luke's and later was replaced by the 49th General Hospital, which continues to occupy the buildings and to provide medical care.

GENERAL KIRK RECEIVES HONORARY DEGREE

Major Gen. Norman T. Kirk, the Surgeon General, and other military leaders were awarded the honorary degree of Doctor of Laws by Columbia University at a special ceremony in New York, February 21. Among the others receiving this degree were Secretary of State George C. Marshall, Gen. Dwight D. Eisenhower, Fleet Admirals Ernest J. King, Chester W. Nimitz and William F. Halsey, Gen. Alexander A. Vandegrift, Vice Admiral Emory S. Land (retired) and Major Gen. Lewis B. Hershey. Gen. Douglas MacArthur and Gen. Henry H. Arnold were unable to attend. The degrees were conferred by the acting president of the university, Frank D. Fackenthal, Litt.D.

This is the citation accompanying General Kirk's degree: Norman Thomas Kirk, who as Surgeon General of the United States Army led the campaign against the hazards of battle; using every resource of speed and skill and research to preserve the lives and restore the health of fighting men; a soldier warring upon disease and disaster, and gaining an unprecedented, an almost unbelievable, victory: I gladly admit you to the degree of Doctor of Laws, *honoris causa*, in this university and confer on you all the rights and privileges which attach thereto.

COST OF ARMY RATION INCREASES 32 PER CENT

A War Department study indicates that the Army is spending up to 32 per cent more today to feed a soldier than it cost a year ago. The value of the garrison ration, which was 60.07 cents in January 1946, is now 79.88 cents. The field ration in the same period increased from 60.07 to 72.88 cents. The caloric value and general structure of the master menu in 1946 was not changed appreciably over that of the previous year, and while designed to yield about 3,800 calories it actually provided an average of 3,611 calories a day, such waste as bones, grease and trimmings representing a loss of about 5 per cent. A soldier was served over the period of a year 335 pounds of meat, 506 pounds of vegetables and potatoes, 281 pounds of milk and milk products, and 190 pounds of cereals and breads, the remaining 500 pounds of food including eggs, fats, beverages, fruits, dried fruits, sugar, citrus fruits and juices and condiments. Of the meat consumed nearly one third was beef.

NAME OF MEDICAL SCHOOL CHANGED

The Surgeon General of the Army has announced establishment of the name Army Medical Department Research and Graduate School. This school, which was formerly known as the Medical Department Professional Service Schools, will continue to be a part of the Army Medical Center. The Army Medical School, which is a part of this research and training center, was established in 1893 and has long been a source of important contributions to medical advancement.

PUBLIC HEALTH SERVICE

THE NATIONAL HEALTH COUNCILS

The U. S. Congress has designated three councils to make recommendations to the Surgeon General, U. S. Public Health Service, regarding means necessary to carry out his responsibilities in Public Law 410 and Public Law 487 of the 78th and 79th Congress respectively in the use of funds for research. The councils are the National Advisory Health Council, the National Advisory Cancer Council and the National Advisory Mental Health Council. Research projects approved by these councils will receive grants in aid for which applications may be made by individuals, medical schools, hospitals and public or private institutions. The membership of the National Advisory Health Council is as follows:

Gordon M. Fair, Graduate School of Engineering, Harvard University.
Edwin B. Fred, University of Wisconsin, Madison.
A. Baird Hastings, Department of Biological Chemistry, Harvard Medical School.
Carl S. Marvel, University of Illinois, Urbana.
Kenneth F. Maxcy, School of Hygiene and Public Health, Johns Hopkins University, Baltimore.
Karl F. Meyer, director, George Williams Hooper Foundation for Medical Research, University of California Medical Center, San Francisco.
John H. Musser, professor of medicine, Tulane University School of Medicine, New Orleans.
Harry S. Mustard, Columbia University School of Public Health, New York.
William C. Rose, Noyes Laboratory of Chemistry, University of Illinois, Urbana.
Henry F. Vaughan, dean, School of Public Health, University of Michigan, Ann Arbor.

The membership of the National Advisory Cancer Council is as follows:

Robert F. Stone, University of California Medical School, San Francisco.
Charles B. Huggins, Department of Surgery, University of Chicago School of Medicine.
Frank E. Adair, Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York.
A. C. Ivy, University of Illinois College of Medicine, Chicago.
Shields Warren, Harvard University Medical School, Boston.
Waltman Walters, Mayo Clinic, Rochester, Minn.

The membership of the National Advisory Mental Health Council was published in THE JOURNAL, February 8, page 409.

FUNDS FOR RESEARCH ON MENTAL PROBLEMS

In accordance with recommendations of the National Advisory Mental Health Council, the U. S. Public Health Service announces that three types of grants may soon be available under the National Mental Health Act. These grants would provide funds for training, for research and for community services. The Public Health Service is now authorized to make grants to institutions offering training in psychiatry, clinical psychology, psychiatric social work and psychiatric nursing. Complete information may be obtained from the Mental Hygiene Division, U. S. Public Health Service, Washington 25, D. C. The National Advisory Mental Health Council expects to take final action on these applications by the middle of April. Interested schools are urged to make their applications.

The council has authorized the U. S. Public Health Service to grant a total of not more than 600 stipends this year to graduate students of psychiatry, clinical psychology, psychiatric social work and psychiatric nursing. The annual stipends range from $1,000 through $2,400 for clinical psychologists, psychiatric social workers and psychiatric nurses and up to $3,600 for psychiatrists. These awards will be made through the institutions collaborating in this phase of the training program of the U. S. Public Health Service. Applicants are requested not to write to training centers of the Public Health Service about these stipends until they are announced in May.

Grants for research relevant to problems of mental health may be made on the recommendation of the National Advisory Mental Health Council to public and private institutions and to individuals. Application forms are obtainable from the Research Grants Division, National Institute of Health, U. S. Public Health Service, Bethesda 14, Md. To assist in development of adequate mental health programs at the community level, grants-in-aid will be made to states on a matching basis. These funds are handled by the mental health authority of each state. Professional and lay people interested in specific service projects should bring their ideas to the attention of their state mental health authority. Funds to inaugurate actual operation of the programs depend on Congressional appropriations. The earliest date such funds may be available is July 1.

PUBLIC HEALTH NURSING WEEK

Marking the seventieth anniversary of public health nursing in the United States, Public Health Nursing Week will be celebrated April 20-26. The National Organization for Public Health Nursing, 1790 Broadway, New York 19, which is sponsoring the observance in cooperation with the U. S. Public Health Service, states that the objectives will be to recruit 8,000 public health nurses urgently needed throughout the country, to promote better understanding of public health nursing as a service for everybody regardless of size of income, and to encourage the organization of public health nursing services.

PERSONAL

Dr. W. V. Wallace, senior surgeon (reserve) U. S. Public Health Service, has become district public health officer with headquarters at Port Arthur, Texas, and also will be in charge of the quarantine station at Sabine, succeeding Dr. Roy Pitre, who resigned to enter private practice. Dr. Wallace served four years in the Navy during the recent emergency, attaining the rank of commander.

VETERANS ADMINISTRATION

NEW HOSPITAL AT TOMAH, WIS.

The 1,172 bed veterans hospital at Tomah, Wis., has been nearly completed, and Dr. G. D. Rice, veteran of some twenty-two years' service in veterans' hospitals, has been named manager of the hospital. Dr. Rice is a graduate of the University of Minnesota Medical School and is a veteran of World War I. The new hospital will occupy a 600 acre farm site. In addition to the ten new buildings, the hospital has taken over all buildings formerly used by the Department of Interior as an Indian boarding school, which buildings have been remodeled at a cost of more than $300,000.

$22,000,000 FOR A NEUROPSYCHIATRIC HOSPITAL

Army engineers have let construction contracts for the Veterans Administration neuropsychiatric 1,984 bed Franklin Delano Roosevelt Hospital at Peekskill, N. Y. Five different firms will build this hospital at a total cost of $22,400,456, the War Department has announced. The Peekskill installation is one of seventy-four hospitals and twenty-three major additions in the $770,000,000 program undertaken by the Army engineers for the Veterans Administration.

PERSONALS

Dr. Morris K. Smith, assistant professor, clinical surgery, Cornell University Medical School, has been appointed full time chief of the surgical service at the Veterans Halloran General Hospital, Staten Island, N. Y.

Dr. R. D. Green, for many years on the staff of the Veterans Hospital, Lincoln, Neb., has been assigned chief medical officer for the Veterans Administration at Sioux Falls, S. D., where a new veterans' hospital is being built.

Dr. James A. Brussell, assistant director, Willard State Hospital, Willard, N. Y., has been appointed consultant in neuropsychiatry to the Veterans Hospital at Sampson, N. Y.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ALABAMA

Meeting of Obstetricians and Gynecologists.—The Alabama Association of Obstetricians and Gynecologists held its annual meeting February 20 in Birmingham. Guest speakers included Drs. F. Bayard Carter, Duke University School of Medicine; Dr. Willard R. Cooke, University of Texas Medical Branch, Galveston; Howard B. Lewis, Ph.D., University of Michigan Medical School, Ann Arbor, and Dr. George N. Papanicolaou, Cornell University Medical College, New York City.

CALIFORNIA

Mr. Gillespie Retires.—After twenty-eight years as chief of the Bureau of Sanitary Engineering, State Department of Health, C. G. Gillespie, Oakland, retired from state service in January. Mr. Gillespie was recently appointed special consultant to the sanitation study section of the National Institute of Health, Washington, D. C. *California's Health*, published by the state department of health, states that Mr. Gillespie "more than any other person is responsible for the development in California of the modern public health program in sanitary engineering."

John Fulton to Give the George Dock Lecture.—Dr. John F. Fulton, Sterling professor of physiology, Yale University School of Medicine, New Haven, Conn., since 1930, and author of the recent biography of Harvey Cushing, will deliver the annual George Dock lecture at the Los Angeles County Medical Association on March 17 at 8 p. m. His subject will be "Harvey Cushing and His Library." Dr. Fulton, a graduate of Harvard Medical School in 1927, was a member of the National Research Council during the war and directed much of the original work on the physiology of aviation.

Health Survey in Seven Cities.—The California State Departments of Public Health and Education are sponsoring a preliminary study of school absenteeism in seven California cities during the spring term. It will be under the direction of Bernice Moss, Ed.D., consultant in health education of the state department of education. The objectives are (1) to assemble data regarding the extent of illness among children together with the specific illnesses and other causes responsible for school absences and (2) to explore ways and means of utilizing these data in improving health teaching so that preventable illnesses may be reduced and the health of school children improved.

FLORIDA

Narcotic Violation.—Dr. Harry M. Elarbee, Pahokee, pleaded guilty in the U. S. District Court at Miami to violation of the Federal Narcotic Law Oct. 16, 1946, was sentenced to a term of fifteen months and placed on probation for a period of two years to commence after completion of his sentence.

Air Base Hospitals Taken Over by Tuberculosis Board.—By taking over two Army Air Base Hospitals the State Tuberculosis Board has provided Florida with six hundred additional beds and a total of three institutions devoted entirely to the hospitalization of tuberculosis patients. The Northwest Florida Tuberculosis Sanatorium, near Marianna, together with 145 acres of land, was originally the Army Air Base Hospital. Beds ready for occupancy number two hundred, and fifty more can be provided. The Southwest Florida Tuberculosis Sanitarium, Tampa, providing four hundred beds and a possible one hundred more, was formerly the Army Air Base Hospital at Drew Field and includes 160 acres of land. The board agreed that the present buildings will be used only until the legislature provides funds with which modern, compact plants can be built. Dr. William D. Rosborough, a graduate of the University of Pennsylvania College of Medicine who has special training in tuberculosis, will superintend the Marianna institution; Dr. Merlin H. Draper, for nineteen years superintendent at the Irene Byron Sanatorium, Fort Wayne, Ind., will superintend the one at Tampa. Dr. Rollen D. Thompson, superintendent of the Florida State Sanatorium at Orlando, has been made general superintendent over all state sanatoriums, but will retain his present position also. Two more sanatoriums remain to be provided in carrying out the plan of an institution for each of the five tuberculosis districts in the state.

ILLINOIS

Society for Mental Hygiene.—The annual meeting of the Illinois Society for Mental Hygiene will be held March 20 at the Standard Club, 320 South Plymouth Court, Chicago. Dr. Andrew C. Ivy, vice president, University of Illinois, in charge of professional schools, will give a physiologic interpretation of appetite.

Counties Without Hospitals.—The Illinois State Health Department, on completing a survey which included a study of 686 hospitals and nursing homes in Illinois, reports that 52 of the 102 counties in Illinois have no hospitals or have hospitals "in name only" without adequate modern facilities. Baxter K. Richardson, Springfield, senior administrative officer, said the survey showed that the southern part of the state had the greatest deficiency in hospital facilities, with twenty-eight counties having no hospital of any kind and twenty-four lacking institutions which could be classified as hospitals.

Committee on Purchase of Hospital Care.—Dr. Roland R. Cross, director of the Department of Public Health, Springfield, has appointed an eleven man technical advisory committee on the purchase of hospital care, which will serve certain governmental agencies. The Department of Public Health, hospital accounts analyst service in the division of maternal and child hygiene, will assume the responsibility for collecting and approving hospital cost analyses for these government agencies, which are the Division of Maternal Care and Child Hygiene (with EMIC and premature programs), the Division of Communicable Diseases (with the ophthalmia programs), the Division of Services for Crippled Children, Vocational Rehabilitation and the Illinois Public Aid Commission.

Chicago

Visit of Capetown Physiologist.—Dr. James T. Irving, head of the physiology department, University of Capetown, South Africa, is working for ten weeks at the University of Illinois College of Dentistry on tooth formation and calcification. Dr. Irving has written widely on carbohydrate metabolism, nutrition and tooth formation.

Experimental Neurosis.—At the January meeting of the National Advisory Health Council in Washington, D. C., the council approved a grant of $11,600 for a three year study of the neurophysiology of experimental neurosis to be conducted at Northwestern University Medical School under the direction of Dr. Jules H. Masserman, assistant professor of nervous and mental diseases.

Personal.—Dr. Andrew C. Ivy, vice president of the University of Illinois in charge of professional colleges, Chicago, has been elected to the board of directors of the John Crerar Library.——Dr. Paul L. Shallenberger, formerly on the staff of Wesley Memorial Hospital and instructor in medicine at Northwestern University Medical School, has joined the staff of the Robert Packer Hospital, Sayre, Pa. Dr. Shallenberger was recently released from service in the army with the rank of colonel.

Two Year Internship at Cook County Hospital.—Beginning July 1, Cook County Hospital will require two year internships to help offset the shortage of general practitioners. Dr. Karl A. Meyer, medical superintendent, said all young doctors at the hospital will be required to undergo this general training before being permitted to specialize. The hospital required an eighteen month internship before the war, but the time was cut to one year under the government's speed up program. The two year internship will include work in obstetrics, general diagnosis, gynecology, contagious diseases, psychiatry, pediatrics and eye, ear and throat ailments.

Irish Lectureship Established.—The first annual Henry E. Irish Lectureship will be given by Dr. Tom D. Spies, University of Cincinnati, at the University of Illinois College of Medicine, April 18 at 5 p. m. in room 221. The subject of the address will be "Modern Research in Nutrition." The lectureship is sponsored by Eta chapter of Alpha Kappa Kappa medical fraternity in honor of the late Dr. Henry E. Irish, a former professor of the University of Illinois College of Medicine and a member of the fraternity. The lectureship will be followed by the annual Tri-Chapter Banquet of the three Chicago chapters of the fraternity, at which Dr. Spies will be guest of honor, and Dr. Andrew C. Ivy, vice president of the University of Illinois, will be the principal speaker.

Institute for Study of Rheumatic Fever.—Gifts amounting to $60,000 have been received by Northwestern University Medical School for the establishment of an Institute for the Study of Rheumatic Fever. The grants, comprising $45,000 from the United States Public Health Service and $15,000 from

the American Cyanamid Company, Lederle Laboratories division, were announced March 7 by Dr. J. Roscoe Miller, dean of the medical school. They represent initial funds for the project, which will require the full time services of at least nine, including as director Dr. Alvin F. Coburn, formerly assistant professor of medicine in the Columbia University College of Physicians and Surgeons, New York City. In the Rheumatic Fever Research Institute and its laboratories, housed on one floor set aside in the Municipal Contagious Disease Hospital, new knowledge of the mechanism of the disease and methods for prevention and treatment will be sought. It is planned to set up eight units in the institute, four in biology and an equal number in chemistry. In conjunction with the fundamental research work, the institute will have the services of additional investigators to engage in clinical research in collaboration with hospitals concerned with the care of rheumatic children. It is expected that the laboratories and other facilities will be completed and ready for operation by July.

KANSAS

Grants for Research at the Menninger Foundation.—At the January meeting of the National Advisory Mental Health Council in Washington, D. C., a grant of $26,500 was approved for a five year investigation of the use of hypnosis in psychotherapy and the nature of the hypnotic state under the direction of Margaret Brenman, Ph.D., and Dr. Merton M. Gill of the Menninger Foundation, Topeka. The council also approved a grant of $18,795.50 for a two year study of the early phases of personality development by Dr. Eunice M. Leitch of the Menninger Foundation.

Cancer Clinics for March.—A series of clinics on cancer arranged by the committee on control of cancer of the Kansas Medical Society, the University of Kansas School of Medicine, Lawrence-Kansas City, and the Kansas State Board of Health are being presented in five cities during March. Drs. Eldridge H. Campbell, professor of surgery, Albany Medical College, Albany, N. Y., and George G. Finney, assistant professor of surgery, Johns Hopkins University School of Medicine, Baltimore, present the course: March 8 and 9, Topeka; March 10 and 11, Salina; March 11 and 12, Hayes; March 13 and 14, Wichita, and March 15 and 16, Parsons. Physicians may register by sending a $5 fee to the University Extension Division, University of Kansas, Lawrence.

MASSACHUSETTS

Appoint Medical Director of Riggs Foundation.—Dr. Robert P. Knight, chief of staff of the Menninger Clinic in Topeka, Kan., has been appointed medical director of the Austen Riggs Foundation at Stockbridge, effective September 1, Ernest Stauffen Jr., New York City, chairman of the board of trustees, announced. Dr. Knight is a graduate of Northwestern University Medical School, Chicago, secretary of the American Psychoanalytic Association and a former president of the American Psychopathological Association. The foundation, established in 1919 by Dr. Austen Fox Riggs, provides psychiatric treatment, trains psychiatrists and conducts research in the field of psychotherapy. It also maintains a clinic in Pittsfield where consultative service is provided to community physicians and health, social and civic agencies.

Boston University Appointments.—New faculty appointments and promotions at the Boston University School of Medicine were announced February 17. In the department of medicine Dr. John P. Rattigan, assistant in medicine, was promoted to assistant professor, while Drs. James W. Culbertson, Edward D. Fries, William L. Hewitt, Dera Kinsey and George W. Waring were promoted from assistants in medicine to instructors. Dr. Burton C. Grodberg was promoted from assistant in gynecology to instructor. New appointments included Drs. Thomas L. Hartman, Boston, and Timothy R. Talbor Jr., Boston, instructors in medicine; Philip Kramer, Boston, Louis Bachrach, Maynard, William E. Greer, Boston, Thomas S. Perrin Jr., Samuel C. Cohen and Donald L. John, Boston, assistants in medicine. In surgery new appointments are Drs. John B. Graham, Newton, Donald F. Rayl, Pierre, S. D., Robert Bolduc, Worcester, and Joseph Stanton, Newton, assistants in surgery and John J. Byrne, Weston, instructor in surgery. Other appointments are Drs. Paul Massick, Boston, and Leslie R. Bragg, Webster, assistants in radiology; Lazarus Secunda, Boston, and Herbert I. Harris, Cambridge, instructors in psychiatry; John L. Morrison, Waltham, assistant in gynecology, and David B. Stearns, Boston, assistant professor in urology.

MICHIGAN

Crane Memorial Lecture.—The annual Crane Memorial Lecture was delivered by Dr. Lawrence Reynolds, Detroit, editor of the *American Journal of Roentgenology and Radium Therapy*, before the Kalamazoo Academy of Medicine, January 18, on "Medical Use of Radioactive Isotopes." The annual lecture honors the late Dr. Augustus W. Crane, pioneer in the field of roentgenology.

Syphilis Higher Among Teen Age Groups.—The syphilis rate among teen agers in Michigan in both rural and city areas is 33 per cent higher today than it was six years ago, according to figures released by the state health department. According to Dr. William DeKleine, state health commissioner, Lansing, investigations disclosed that the boys and girls had little or no knowledge of fundamental facts about venereal disease.

Director of Psychiatry Appointed.—The appointment of Dr. John M. Dorsey, special professor and chairman of the department of psychiatry at Wayne University College of Medicine, Detroit, as director of the psychiatric division of the City of Detroit Receiving Hospital was recently announced by the Detroit Common Council. Under the new arrangement the university's psychiatric students will work under the same director at the hospital as at the college in their research and training activities.

Food Poisoning—Cream Pies.—The state department of health laboratory reported February 18 that a hemolyticus organism in cream pies was responsible for the poisoning of 243 persons in Detroit over the preceding weekend. The cream pies were said to have been heavily contaminated, Dr. Joseph G. Molner, Detroit, deputy health commissioner, said. The company has stopped making cream pies. The health department examined 17 employees of the bakery to determine whether any of them might have caused the infections.

Department of Industrial Medicine.—A department of industrial medicine and training course for medical graduates covering all phases of industrial medicine is to be established at Woodward General Hospital, Detroit. It is intended to train doctors for service with the medical divisions of both large and small industrial plants. More than $400,000 has been collected toward building the $2,500,000 hospital to be built at Thirteen Mile Road near Woodward Avenue. Wayne University is collaborating with the advisory board of Woodward General Hospital medical staff in setting up the department and training staff.

County Society Approves Epileptic Clinic.—The council of the Wayne County Medical Society has approved the establishment of a proposed clinic for epileptic patients outlined in the report of the medical education committee. The purpose of the clinic is to investigate the problem of epilepsy by social and medical treatment of patients on an outpatient basis. Of the 7,000 epileptics in Detroit, only about 700 need institutional care, said Arthur J. Derbyshire, Ph.D., Detroit. The clinic will be financed by private contributions and income from patients who will be secured by referrals from private physicians and agencies. An advisory board set up by the Wayne County Medical Society will govern the medical policy.

MINNESOTA

E. Starr Judd Lecture.—The fourteenth E. Starr Judd lecture will be given by Dr. Isidor S. Ravdin, John Rhea Barton professor of surgery, University of Pennsylvania, April 15 at 8:15 in the auditorium of the Museum of Natural History, Minneapolis. Dr. Ravdin's subject is "Changing Concepts in Surgical Care." The late E. Starr Judd, an alumnus of the Medical School of the University of Minnesota, established this lectureship in surgery a few years before his death.

NEBRASKA

Personal.—Dr. John A. Waggener, 94, Humboldt, a practicing physician for 68 years until his recent retirement, was lately awarded the Humboldt Rotary Club's honorary membership for distinguished community service.

Grant to Continue Research.—Under a grant of $11,980 by the National Foundation of Infantile Paralysis, Dr. Archibald R. McIntyre, chairman, department of physiology and pharmacology, University of Nebraska College of Medicine, Omaha, will continue research on muscle physiology.

State Health Director.—Dr. Wallace S. Petty, Lincoln, has been reappointed state director of health. He joined the department in January 1942 after being in public health work in several Midwestern and Southern states. Dr. Petty graduated from Keokuk (Iowa) Medical College of Physicians and Sur-

geons in 1908 and did graduate work in public health at the University of Minnesota. In 1942 he was elected vice president of the International Society of Medical Health Officers at the Amercian Public Health Association meeting in St. Louis.

NEW YORK

County Postgraduate Instruction.—Postgraduate instruction has been arranged by the council committee on public health and education of the Medical Society of the State of New York and the New York State Department of Health in March for the following counties:

March 11, Chenango County, 7 p. m., Norwich Club, Norwich, Dr. Frederick N. Marty, Syracuse University College of Medicine, Use of Blood and Blood Substitutes and Derivatives.
March 11, Nassau County, 4 p. m., Nassau Hospital, Mineola, Dr. William B. Sherman, Roosevelt Hospital, New York City, Allergy, and March 18, Dr. Stockton Kimball, dean, University of Buffalo School of Medicine, Treatment of Disorders of the Liver.
March 12, Otsego County, Tunnicliff Inn, Cooperstown, 6:30 p. m., Dr. Leslie A. Osborn, University of Buffalo School of Medicine, Recognition and Management of Psychiatric Problems in General Practice.
March 13, Jefferson County, 6:30 p. m., Hotel Woodruff, Watertown, Dr. Walter Modell, Cornell University Medical College, New York City, Management of the Failing Heart.
March 13, St. Lawrence County, 12 noon, Arlington Inn, Potsdam, Dr. Walter Modell, Management of the Failing Heart.

New York City

Changes in Status of Licensure.—The New York State Board of Medical Examiners on June 3 restored the state license to practice medicine to Dr. David Newman.

Herman M. Biggs Memorial Lecture.—Dr. Haven Emerson, emeritus professor of public health practice, Columbia University College of Physicians and Surgeons, will deliver the Herman M. Biggs Memorial Lecture April 3 at 8:30 p. m. at the New York Academy of Medicine on "The Hospital Survey and Construction Act and a Nationwide Health Program." The lecture, given at the concluding session of a three day institute on public health, is under the auspices of the committee on public relations.

Harvey Lectures. — The fifth Harvey Lecture of the current series at the New York Academy of Medicine was delivered February 20 by John J. Bittner, Ph.D., George Chase Christian professor of cancer research and director of the division of cancer biology, department of physiology, University of Minnesota, on "The Causes and Control of Breast Cancer in Mice." Dr. James L. Gamble, professor of pediatrics, Harvard Medical School, Boston, will deliver the sixth Harvey lecture at the Academy March 20 on "Physiological Information Gained from Study on the Life Raft Ration."

OHIO

Residency Opening.—Glenville Hospital, 701 Parkwood Drive, Cleveland 8, has announced a mixed residency opening July 1. Further information may be obtained by writing Arthur B. Harris, superintendent.

Dr. Zollinger to Head Clinical Surgery Department.—The appointment of Dr. Robert M. Zollinger, Columbus, as chairman of the department of clinical surgery in Ohio State University College of Medicine, Columbus, was announced recently. He replaces Dr. Verne A. Dodd, who has resigned to devote full time to other responsibilities as professor of surgery and chief of staff of Starling-Loving University Hospital. Dr. Zollinger is a graduate of Ohio State University. He taught previously at Harvard Medical School and was on the staff of the Peter Bent Brigham Hospital, Boston, before serving overseas as a colonel in the medical corps in the recent war.

PENNSYLVANIA

Secretaries-Editors Conference.—The 1947 secretaries-editors conference will be held this year in Harrisburg the afternoon and evening of March 20 and the morning of March 21. The president of each county society and the chairman of each county society's committees on public health legislation, medical economics and public relations will be guests of the state medical society at the conference. Speakers from national, state and county medical societies will discuss public relations, pending health legislation, voluntary insured medical service and medical service for veterans. A panel forum is planned for Friday morning.

Philadelphia

Personal.—Dr. William F. Brehm has joined the staff of Robert Packer Hospital, Sayre, Pa. Dr. Brehm recently was released from service in the army and since then has been working as an anesthetist with Dr. Henry S. Ruth in Philadelphia.

Grants to Temple University. — The National Cancer Institute of Bethesda, Md., has made a grant of $10,000 to the Temple University School of Medicine and Hospital for the study of the relationship of cellular injury to the development of repair and neoplastic tendencies. Another grant of $20,750 a year has been received from the U. S. Public Health Service for an investigation of the heart and circulation.

SOUTH CAROLINA

Dr. Guerry Honored. — A bronze plaque bearing Dr. LeGrand Guerry's name was unveiled when the northwest wing of Columbia Hospital, Columbia, was dedicated January 20. Dr. George H. Bunch Sr. delivered the address before the hospital board of trustees, members of the Columbia Medical Society and other guests. Dr. Guerry is a graduate of the University of Georgia School of Medicine, Augusta, and is a past president of the Southern Surgical Association. He has been associated with the hospital for nearly fifty years.

Funds for Planning Health Projects. — The Federal Works Agency has granted South Carolina more than $400,000 to finance the planning of one hundred and twenty health facility projects with a final cost of over $13,000,000, according to H. M. McElveen, special representative of the state board of health. The largest approved project is the Charleston County Tuberculosis Association's $750,000 plan for a new tuberculosis hospital. Counties have been urged by the state board of health to file projects for health center buildings if present facilities are not adequate, and state health officials will help in planning and obtaining approval.

TEXAS

Dr. Cary Honored on 75th Birthday.—The Southwestern Medical Foundation was host at a dinner in Dallas, February 28, given in celebration of the 75th birthday of Dr. Edward Henry Cary. Among those present were Dr. Elmer L. Henderson, Louisville, Ky., president of the Southern Medical Association, who spoke on "Contributions to Medicine in the South"; Dr. Charles Gordon Heyd, New York City, whose subject was "The Expansive Force of Medical Education"; Dr. Morris Fishbein, Chicago, whose subject was "The Medical Profession's Benefactor"; Dr. Harrison H. Shoulders, Nashville, Tenn., President of the American Medical Association, who spoke on "American Medicine's Elder Statesman," and Dr. John G. Young, president, Dallas County Medical Society, "Viewed Through the Eyes of the Dallas Medical Profession." Among many honors which have been bestowed on Dr. Cary in his long and distinguished career have been the presidencies of the Dallas County, Texas State, Texas Ophthalmological and Otological, Southern Medical and the American Medical associations. He has been president of the executive board of the National Physicians Committee, the Philosophical Society of Texas, the Medical Arts Hospital and the Group Hospital Service. He was for many years dean of Baylor University Medical School and professor of ophthalmology. During World War I Dr. Cary organized the Baylor Medical and Surgical Unit, which served with distinction in France. In 1939 he and a group of Dallas business men organized the Southwestern Medical Foundation, which shortly thereafter launched the Southwestern Medical College. The community in which Dr. Cary has lived for so many years recently bestowed on him for his service to the community the Linze Award. President Umphrey Lee of Southern Methodist University, Dallas, at the end of the banquet presented to Dr. Cary the sum of $20,000 for scholarships in his name.

WASHINGTON

Course for Food Handlers.—A course in food handling required by the county food ordinances for any person working in a food establishment started January 27 in Vancouver. Classes will meet each Monday afternoon and evening through April 14. Organizations responsible for sponsoring the course are Clark County District Health Department, the southern division of the Washington State Restaurant Association, the Vocational Education Division and Culinary Alliance Local No. 425.

WISCONSIN

Brief Intensive Course in Pediatrics.—The University of Wisconsin Medical School, Madison, is again presenting a brief intensive course in pediatrics for the general practitioner. It will be held April 7 to 11 at the medical school and the State of Wisconsin General Hospital, Madison. Material includes diabetes mellitus in children, infant-feeding problems and the feeding of the premature infant, renal disease in children, hemolytic anemia due to Rh incompatibility, respiratory diseases and tuberculosis in childhood, ringworm infection in children and the technic of intravenous and bone marrow trans-

fusion. The course will be under the direction of Drs. John E. Gonce Jr., professor of pediatrics; Horace K. Tenney Jr. and Kenneth E. McDonough of the pediatric division. Details may be obtained from Dr. Llewellyn R. Cole, Coordinator of Graduate Medical Education, The University of Wisconsin Medical School, 418 North Randall Avenue, Madison 6.

CANADA

Personal.—Dr. C. B. Weld, professor of physiology at Dalhousie University Faculty of Medicine, Halifax, N. S., has been elected president of the Canadian Physiological Society.

Provincial Minister of Health Appointed.—The appointment of Dr. Donald Griffith McKerracher, Barrie, Ont., as provincial psychiatrist and commissioner of mental services in Saskatchewan was recently announced by the minister of health. Dr. McKerracher has served with the Ontario Department of Public Health.

Appoint Professor of Medicine.—Dr. Clyde W. Holland, Halifax, Nova Scotia, has been appointed the J. C. Troy professor of medicine and head of the department at Dalhousie University. Dr. Holland has been director of the student health service, Dalhousie University, since 1931 and is also attending physician at Victoria General Hospital and consulting physician at Grace Maternity Hospital. This chair in medicine was founded by the late Hon. J. C. Troy, former lieutenant governor of the province, who bequeathed the residue of his estate to the university to be used for medical research.

GENERAL

Homer Folks Resigns.—Homer Folks, New York City, after serving more than half a century as secretary of the State Charities Aid Association, has resigned. No successor has yet been named. Mr. Folks's contributions in the field of public health and social service include pioneering activities in organized movements for improvements of public institutions for the care of children, for public relief, for the prevention of tuberculosis and for the promotion of preventive medicine and mental hygiene.

Orthoptic Council Examinations.—The next examination for technicians by the American Orthoptic Council will be held in September-October. The written examinations on Friday, September 12, will be held at various cities in the country. Only those passing the written examinations will be permitted to take the oral and practical tests to be given in Chicago, Saturday, October 11. Applications on official forms must be received before July 1. Address the American Orthoptic Council, 23 East 79th Street, New York 21.

Colonel Craig Resigns as Editor.—The resignation of Col. Charles Franklin Craig, San Antonio, as editor of the *American Journal of Tropical Medicine* was announced in the February issue of *Tropical Medicine News*. Colonel Craig, who has been editor for over twenty years, received his M.D. degree from Yale Medical College in 1894 and for many years was a member of the U. S. Army Medical Corps. He served as professor of bacteriology and parasitology and preventive medicine and director of laboratories, Army Medical School, Washington, D. C., 1920-1922. Later he served on the faculty of Tulane University of Louisiana School of Medicine, New Orleans, as professor of tropical medicine and director of the department.

Practical Nurse Training Programs.—The U. S. Office of Education has made a study of the practical nurse occupation. The president of the American Association for Practical Nurses Education was chairman of the committee, and Arthur B. Wrigley, state supervisor of trade and industrial education in New Jersey, was director of the study. The committee represented national nursing, hospital, public health and educational organizations and the trained practical nurse group. The report, entitled "Practical Nursing—An Analysis of the Practical Nurse Occupation with Suggestions for the Organization of Training Programs," Misc. No. 8, can be purchased from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., for 55 cents.

Association for Study of Goiter.—The American Association for the Study of Goiter will meet April 3-5 under the presidency of Dr. W. B. Mosser, Kane, Pa., at the Biltmore Hotel, Atlanta, Ga. At a joint meeting of the association and the Fulton County Medical Association at the Academy of Medicine, Dr. Arnold S. Jackson, Madison, Wis., will speak on "Traditions in Surgery" and Dr. John Hertz, Copenhagen, Denwark, on "Studies of Thyrotoxicosis." Among subjects to be discussed by leaders in this field throughout the country are indications for surgery in hyperthyroidism, evaluation of newer methods of treatment of thyrotoxicosis, directions of present day thyroid research, possible use of radioactive iodine in the diagnosis of thyroid disease, thyrotoxicosis without elevated metabolism and thiouracil and related substances in the treatment of toxic goiter.

Graduate Training in Psychoanalysis.—The Psychoanalytic Clinic for Training and Research, department of psychiatry, College of Physicians and Surgeons, Columbia University, New York, offers a three year graduate residency training program in psychoanalytic medicine to qualified physicians. On fulfilment of the requirements, students will be awarded a certificate of training in psychoanalytic medicine. Students who, in addition, undertake satisfactory investigative work and pass a supplementary examination in the related basic sciences may also be awarded the advanced degree of Doctor of Medical Science. The intramural psychiatric residency starts on July 1, and the required courses of lectures and seminars start on October 1. Those who have already completed two years' residency in a mental hospital recognized by the American Medical Association will be allowed credit.

Borden Awards.—Nine American scientists have received Borden Awards of a gold medal and $1,000 for exceptional contributions to scientific research during 1946. The awards are administered by eight professional and scientific associations. Among the associations and the 1946 recipients are the American Chemical Society, Ira A. Gould Jr., Ph.D., professor of dairy manufacturing, University of Maryland, for studies in the changes in milk and milk products; American Academy of Pediatrics, Dr. James L. Gamble, professor of pediatrics, Harvard Medical School, Boston for pioneer work in the field of salt and water balances in the human body; the American Institute of Nutrition, Dr. Philip C. Jeans, professor and head of pediatrics, and Genevieve Stearns, Ph.D., research professor of pediatrics, both of State University of Iowa College of Medicine, Iowa City, for fundamental contributions in the field of child nutrition and for research on the nutritive value of milk.

Scholarships for Prevention of Blindness.—The National Society for the Prevention of Blindness announces the establishment of nine one year scholarships of $1,000 each for students interested in professional education to qualify for positions in sight conservation and prevention of blindness. Positions are open in public and private prevention of blindness agencies, hospitals and organizations offering medical care programs. The positions require both community organization and case work skills. Scholarships will be available beginning in the spring term of 1947. Applications may be secured by writing the National Society for the Prevention of Blindness, 1790 Broadway, New York 19. In addition, the Delta Gamma Fraternity of College Women has announced the establishment of a fund for scholarships in the fields of prevention of blindness and sight conservation exemplified by specialized prevention study, training of orthoptic technicians, training of teachers for sight-saving classes and training of workers for the preschool blind. Information on basic qualifications for the various fields of the Delta Gamma scholarships may be secured from Mrs. Richard P. Miller, 39 West Jefferson Road, Pittsford, N. Y.

Marriages

Sidney Prystowsky, Charleston, S. C., to Miss Grace Buchstane of West Hartford, Conn., in Hartford October 20.

Anthony Rullan, Yauco, Puerto Rico, to Miss Jane Barbara Hryhorczuk of New York August 3.

Robert Yates Hayne Thomas to Miss Mary Bolling Duncan, both of Jacksonville, Fla., in October.

Bill Morris Phillips to Miss Marjoria Elaine Prestridge, both of Bogue Chitto, Miss., October 17.

David William McLean, to Miss Eleanor Virginia Myers, both of Meridian, Miss., in October.

John Roy Hege Jr., Raleigh, N. C., to Miss Dorothy White Huff of Birmingham, Ala., recently.

De Forest E. Hale, Manlius, N. Y., to Miss Alice Barker of Clifton Springs in September.

Alvis Joe Scull Jr. to Miss Gloria Robison, both of Houston, Texas, September 17.

Joseph Brannen Ganey to Miss Eleanor Mays Bass, both of Bradenton, Fla., October 19.

Paul Irving Ossen to Mrs. Bernice Ossen, both of Quincy, Mass., October 20.

Deaths

Clarence Martin Jackson ✠ Minneapolis; born in What Cheer, Iowa, April 12, 1875; University of Missouri School of Medicine, Columbia, 1900; an affiliate Fellow of the American Medical Association; president of the Minnesota State Board of Examiners in the Basic Sciences; since 1941 professor emeritus of anatomy at the University of Minnesota Medical School, where he had been professor and head of the department of anatomy since 1913; first became associated with the school in 1900 as assistant professor of anatomy, became professor in 1902 and head of the department in 1913; served as dean from 1909 to 1913; in 1917-1918 and in 1925 dean of the University of Minnesota Graduate School, where he was professor of anatomy; at one time secretary of the Missouri State Anatomical Board; formerly professor of anatomy and head of the department at the University of Missouri and later appointed dean of the medical school; in 1923-1924 chairman of the medical division of the National Research Council; past president and served as chairman of the committee on anatomic nomenclature, American Association of Anatomists; the local chapter of Phi Beta Pi medical fraternity, of which he was a member, for several years sponsored the annual "Jackson Lecture," in which many distinguished scientists participated; in 1923 awarded the LL.D. degree by the University of Missouri in recognition of his services to education; author of "Effects of Inanition and Malnutrition upon Growth and Structure"; co-author of the "Measurement of Man"; at one time editor of Morris's Human Anatomy; died January 17, aged 71, of Parkinson's disease.

Frank Earl Bass, Shelbyville, Ind.; Medical College of Indiana, Indianapolis, 1903; member of the American Medical Association; served as secretary-treasurer of the Shelby County Medical Society; died January 4, aged 65, of carcinoma.

Roger Bernard Brewster, Siloam Springs, Ark.; Kansas City (Mo.) Medical College, 1905; formerly on the staff of the Kansas City General Hospital in Kansas City, Kan., where he had been physician for the Missouri Pacific Railroad and the Kansas City Gas Company; served during World War I; died January 6, aged 71, of lobar pneumonia.

Michael Brown, Dalton, Ky.; University of Louisville (Ky.) Medical Department, 1890; died January 12, aged 83, of heart disease.

Fred Welden Caudill ✠ Louisville, Ky.; University of Louisville School of Medicine, 1926; commissioned passed assistant surgeon in the U. S. Public Health Service in 1927; formerly health officer of Scott and Perry counties; served as epidemiologist of the state health department; on the staff of Crippled Children and Children's Free hospitals; died January 12, aged 46, of encephalitis.

Clarence Alonzo Cheever, Boston; Harvard Medical School, Boston, 1883; member of the American Medical Association; died Dec. 31, 1946, aged 88, of cerebral hemorrhage.

Harry Louis Claassen ✠ Cincinnati; University of Cincinnati College of Medicine, 1918; professor of dermatology at his alma mater; specialist certified by the American Board of Dermatology and Syphilology; member of the American Academy of Dermatology and Syphilology; director of the department of dermatology at the Cincinnati General Hospital; died January 11, aged 54, of coronary occlusion.

William Jasper Curry, Rogers, Ark. (licensed in Arkansas in 1903); member of the American Medical Association; health officer; died January 4, aged 95, of heart disease.

Isaac Davis ✠ Pittsburgh; Johns Hopkins University School of Medicine, Baltimore, 1914; died Dec. 25, 1946, aged 58.

George Claude Dittman ✠ St. Paul; University of Minnesota College of Medicine and Surgery, Minneapolis, 1904; served during World War I; affiliated with St. Joseph Hospital, where he died January 9, aged 64, of cardiac infarction.

Stephen Edward Donlon ✠ Chicago; Rush Medical College, Chicago, 1895; an affiliate Fellow of the American Medical Association; fellow of the American College of Surgeons; at one time on the faculty of his alma mater; on the staff of St. Anthony de Padua Hospital; died January 6, aged 82, of cerebral hemorrhage.

Earl Bishop Downer, Youngstown, Ohio; Ohio Medical University, Columbus, 1907; U. S. Army Medical School in 1914; at one time instructor at the Ohio Medical University; served as American Red Cross surgeon in Belgrade, Serbia, during the typhus epidemic and German invasion; director of the Edwin Gould Relief Mission to Russia; formerly on the staff of St. Elizabeth's Hospital; author of several books; died January 1, aged 61, of coronary thrombosis.

George Estle Embry, Morgantown, Ky.; University of Louisville Medical Department, 1910; member of the American Medical Association; died January 10, aged 60, of cerebral hemorrhage.

Hannibal Claude Fortune, Payson, Ill.; St. Louis University School of Medicine, 1905; veteran of the Spanish-American War; died January 4, aged 74, of coronary thrombosis.

George Freiman ✠ Brooklyn; Long Island College Hospital, Brooklyn, 1914; clinical professor of ophthalmology at his alma mater; specialist certified by the American Board of Ophthalmology; member of the American Academy of Ophthalmology and Otolaryngology; member of the courtesy staff of the Brooklyn Eye and Ear Hospital; fellow of the American College of Surgeons; served during World War I; affiliated with the Long Island College Hospital, where he died January 3, aged 53, of coronary occlusion.

Oliver George Grady, Orrville, Ohio; Starling-Ohio Medical College, Columbus, 1909; member of the American Medical Association; served during World War I; president of the county health department; died in the City Hospital, Massillon, January 11, aged 62, of carcinoma of the bladder.

Daniel Heimlich ✠ Los Angeles; Western Reserve University Medical Department, Cleveland, 1892; member of the Ohio State Medical Association; served during World War I; died in the Cedars of Lebanon Hospital January 7, aged 78, of coronary sclerosis.

Maurice Alphonsus Regis Hennessy, Cleveland; St. Louis University School of Medicine, 1926; member of the American Medical Association, American Psychiatric Association and the American Orthopsychiatric Association; specialist certified by the American Board of Psychiatry and Neurology; demonstrator of nervous diseases at Western Reserve University School of Medicine; on the staff of St. Vincent Charity Hospital; died Dec. 31, 1946, aged 46, of heart disease.

Samuel W. Hervey, Fortville, Ind.; Medical College of Indiana, Indianapolis, 1887; Medical College of Ohio, Cincinnati, 1891; member of the American Medical Association; died in the Methodist Hospital, Indianapolis, January 8, aged 81, of abdominal carcinomatosis.

John Elmer Hughes ✠ Shawnee, Okla.; Northwestern University Medical School, Chicago, 1906; past president of the Pottawatomie County Medical Society; later founder and co-owner of the Anderson, Carson and Hughes Hospital; on the courtesy staff of the Shawnee Municipal Hospital; on the staff of the Shawnee Indian Sanatorium; division radiologist for the Rock Island Railway; died off the coast of Acapulco, Mexico, January 15, aged 68, of coronary occlusion.

Robert James Hutchinson ✠ Grand Rapids, Mich.; Detroit College of Medicine, 1896; fellow of the American College of Surgeons; affiliated with the Blodgett Memorial Hospital, St. Mary's Hospital and Butterworth Hospital, where he died January 8, aged 77, of glomerular nephritis and hypertension.

Victor Eugene Kaufman, Canton, Ohio; Starling-Ohio Medical College, Columbus, 1912; died January 9, aged 67, of coronary embolism.

Joseph Henry Kerrigan ✠ Manchester-by-the-Sea, Mass.; Tufts College Medical School, Boston, 1907; a member of the board of health in Stoneham and the school committee; served during World War I; past president of the Middlesex East District Medical Society; on the staff of the Choate Memorial Hospital, Woburn, and on the associate staff of the Winchester (Mass.) Hospital; died in Miami, Fla., January 3, aged 61, of heart disease.

Thomas Otis Klingner, Springfield, Mo.; Missouri Medical College, St. Louis, 1898; member of the American Medical Association and of the American Academy of Ophthalmology and Otolaryngology; specialist certified by the American Board of Ophthalmology; on the staffs of the Louise G. Wallace Hospital, Lebanon, Springfield Baptist Hospital, St. John's Hospital, City Hospital and the Burge Hospital, where he died January 7, aged 72, of carcinoma.

Sylvester Maxwell Lambert ✠ Walnut Creek, Calif.; Syracuse University College of Medicine, 1908; an Associate Fellow of the American Medical Association; served for many years in the South Sea Islands with the International Health Division of the Rockefeller Foundation; author of "A Yankee Doctor in Paradise"; died January 10, aged 64, of heart disease.

Harold Arthur Morris, Brooklyn; Long Island College Hospital, Brooklyn, 1907; member of the American Medical Association; fellow of the American College of Surgeons; affiliated with the Swedish Hospital in Brooklyn and the Harlem Valley State Hospital in Wingdale; died January 17, aged 62, of cerebral thrombosis.

Joseph Andrew Novelli ✦ Brooklyn; Fordham University School of Medicine, New York, 1918; on the staff of the Evangelical Deaconess Hospital, where he died January 14, aged 53, of coronary thrombosis.

Julius E. Pinguely, Melbourne, Ky.; Medical College of Ohio, Cincinnati, 1888; member of the American Medical Association; died in the Speer Memorial Hospital, Dayton, January 16, aged 88, of gastric hemorrhage.

Rosa Caldwell Turnbull Powell, Grants Pass, Ore.; Cleveland Homeopathic Medical College, 1904; member of the American Medical Association; died January 6, aged 74, of heart disease.

William Lightfoot Powell, Palmyra, Ill.; Bennett Medical College, Chicago, 1897; died in the Macoupin Hospital, Carlinville, Dec. 25, 1946, aged 86, of cerebral hemorrhage.

George S. Price, Fairport, N. Y.; Eclectic Medical Institute, Cincinnati, 1892; member of the American Medical Association; served during World War I; formerly county coroner, health officer of Fairport and secretary of the board of health; at one time treasurer of the New York State Health Officers Association; served on the staff of the Genesee Hospital, Rochester, N. Y.; died January 18, aged 78, of cerebral hemorrhage.

Michael Leo Ravitch, New York; University of Moscow Faculty of Medicine, Russia, 1889; Central Medical College of St. Joseph, Mo., 1895; consulting dermatologist to Camp Zachary Taylor, Ky., during World War I; formerly on the staffs of the Michael Reese Hospital, Chicago, and the Eastern Kentucky Insane Asylum and Jewish Hospital in Louisville, Ky.; author of "Romance of Russian Medicine"; died January 11, aged 79, of coronary thrombosis.

Mark S. Reuben, New York; Columbia University College of Physicians and Surgeons, New York, 1906; at one time assistant and associate in pediatrics at his alma mater; formerly chief of clinic, pediatric department of Vanderbilt Clinic; served as associate in pediatrics and visiting pediatrician at the Beth Israel Hospital; died January 15, aged 63, of coronary sclerosis and pernicious anemia.

David Robins ✦ Newark, N. J.; University and Bellevue Hospital Medical College, New York, 1905; for many years an examining physician for the health department and the board of education; member of the staff of the City Hospital; died in the Newark Beth Israel Hospital January 16, aged 61, of sarcoma.

William Nicholas Senn, Chicago; Rush Medical College, Chicago, 1900; member of the American Medical Association; served during the Spanish-American War and World War I; at one time on the faculty of his alma mater; on the staffs of the Presbyterian and St. Joseph's hospitals; died in Wesley Memorial Hospital January 2, aged 70, of bronchopneumonia and arteriosclerosis.

Adelard Simard, Saginaw, Mich.; M.B., School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, 1905 and M.D. in 1906; died Dec. 6, 1946, aged 79.

Claude Adams Stearns ✦ Alto Pass, Ill.; Barnes Medical College, St. Louis, 1911; died in Anna, Dec. 2, 1946, aged 61, of pneumonia.

George Brinton Sturgeon, Orwell, Ohio; Homeopathic Hospital College, Cleveland, 1892; died Dec. 1, 1946, aged 81, of cerebral embolism.

Joseph Thompson, Cleveland; University of Wooster Medical Department, Cleveland, 1906; member of the American Medical Association; affiliated with St. Ann's Maternity Hospital; died in Hershey, Pa., Dec. 22, 1946, aged 61, of coronary thrombosis.

Olga C. Thoren, Chicago; Bennett Medical College, Chicago, 1900; died January 13, aged 74, of carcinoma of the stomach.

W. E. Ticen, Mooreland, Ind.; Indiana Medical College, School of Medicine of Purdue University, Indianapolis, 1906; affiliated with the Henry County Hospital in New Castle; died January 4, aged 71, of coronary thrombosis.

George Connor Trawick, Chesterfield, Mo.; Vanderbilt University School of Medicine, Nashville, Tenn., 1899; local medical director of the Equitable Life Assurance Society of the United States; died in Jefferson Barracks, Mo., Dec. 7, 1946, aged 67, of heart disease.

Carden Frederick Warner ✦ Washington, D. C.; Hahnemann Medical College and Hospital of Philadelphia, 1904; served on the staff of the National Homeopathic Hospital; died Dec. 5, 1946, aged 64, of coronary thrombosis.

George S. Wells, Santa Barbara, Calif.; Pulte Medical College, Homeopathic, Cincinnati, 1891; fellow of the American College of Surgeons; died Dec. 3, 1946, aged 83, of dissecting aneurysm of the abdominal aorta.

Fred Donnell West, Beaumont, Calif.; Ohio Medical University, Columbus, 1903; member of the American Medical Association; died Nov. 24, 1946, aged 69.

Abraham E. White, Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1890; died Dec. 29, 1946, aged 86, of heart disease due to carcinoma of the prostate.

Charles M. White, Clinton, Ind.; Jefferson Medical College of Philadelphia, 1876; member of the American Medical Association; at one time mayor of Clinton; on the staff of the Vermillion County Hospital, where he died January 2, aged 93, of senility.

Joel Govan Williams, Norway, S. C.; Baltimore Medical College, 1890; died Dec. 12, 1946, aged 85, of heart disease.

John Williams Wilson, Monticello, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1909; member of the American Medical Association; served during World War I; died in the Mississippi Baptist Hospital, Jackson, Dec. 8, 1946, aged 61, of carcinoma of the stomach and liver.

Calvin Homer Wyker ✦ Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1909; on the staff of the Grant Hospital; died Dec. 23, 1946, aged 63, of metastatic epithelioma.

Eugene L. Youngue, Lakin, W. Va.; Leonard Medical School, Raleigh, N. C., 1908; medical superintendent of the Lakin State Hospital; died Dec. 24, 1946, aged 61, of coronary heart disease.

DIED WHILE IN MILITARY SERVICE

Arnold Breckenridge ✦ Lieutenant M. C., U. S. Navy, Chapel Hill, N. C.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1942; interned at St. Mary's and Naval hospitals in San Francisco; began active duty as a lieutenant (jg) in the medical corps of the U. S. Navy in 1943; promoted to lieutenant; a flight surgeon; died in Santa Ana, Calif., May 3, 1945, aged 29, in an explosion and crash of naval aircraft.

Ralph Edward Costanzo, Stamford, Conn.; Bennett Medical College, Chicago, 1914; member of the American Medical Association; served overseas during World War I; began active duty as a captain in the medical reserve corps of the U. S. Army in April 1941; assigned to Fort H. G. Wright, N. Y., where he was promoted to the rank of major and appointed post surgeon; died in the Stamford Hospital Dec. 26, 1946, aged 59, of coronary occlusion while on leave.

Howard Earling, Seattle; McGill University Faculty of Medicine, Montreal, Que., Canada, 1940; interned at the Charity Hospital in New Orleans and the Seattle General Hospital; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on Dec. 21, 1942; promoted to lieutenant and lieutenant commander; died April 21, 1946, aged 42, of a malignant tumor.

Frederic Reid Fenno, Syracuse, N. Y.; Syracuse University College of Medicine, 1938; interned at the Boston City Hospital; began active duty as a first lieutenant in the medical reserve corps of the U. S. Army in February 1941; promoted to captain; served in this country, Africa, Italy and Burma; died in Bermuda July 20, 1945, aged 30, of acute hepatitis.

William Robert Galbreath ✦ Bloomsburg, Pa.; University of Nebraska College of Medicine, Omaha, 1916; fellow of the American College of Surgeons; formerly resident physician at the Presbyterian Hospital in San Juan, P. R.; served during World War I; began active duty as a lieutenant colonel in the medical corps, Army of the United States, in July 1942 and chief of the surgical service at the Station Hospital in Fort Eustis, Va.; later became commanding officer of the Station Hospital at Camp Patrick Henry, Hampton Roads; promoted to colonel; received a certificate of commendation for his services at Camp Patrick Henry; died in the Valley Forge General Hospital, Phoenixville, Nov. 3, 1946, aged 61, of myocardial infarction while on terminal leave.

Julius Robert Kaufman, St. Louis; St. Louis University School of Medicine, 1931; member of the American Medical Association; interned at St. Louis City Hospital; began active duty as a captain in the medical corps, Army of the United States, in July 1942; died in the Oakland (Calif.) Regional Hospital July 14, 1946, aged 39, of hernia.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Feb. 1, 1947.

British Association Decides to Negotiate With the Minister of Health

As anticipated in the preceding letter, the representative meeting of the British Medical Association has decided to negotiate with the government in regard to the National Health Service, in accordance with the recommendation of the council. In moving a resolution to this effect Dr. Dain, chairman of the council, said that this alteration of the council's first recommendation (to refuse to negotiate) did not mean any weakening in its policy of opposition to the act as it stands. In no sense was it a climb down. It was obvious that the letters of the presidents of the Royal Colleges, the plebiscite and the council's strong recommendation not to negotiate had produced in the minister of health a more conciliatory attitude than he had hitherto shown. His weakening on the question of a basic salary was helpful. The council proposed to discuss the conditions of a complete health service comprehensively and not to be bound by the terms of the act. If the minister refused to negotiate, no harm had been done and the association had the opportunity of putting itself right with the public.

Much opposition to the proposal to negotiate was made in the discussion which followed. It was argued that the act violated the principles set out by the council as fundamental. On the other hand, it was argued that the majority against negotiation obtained in the plebiscite was not great and that diplomacy rather than brute force was indicated. The amendment not to negotiate was defeated by a large majority. Lord Horder then moved an amendment "that the association confirms the already expressed policy in that it is anxious and willing to cooperate with the government in evolving the best possible health service for the country and realizes that this cooperation will require some new legislation." He held it to be vital that the minister should be aware from the first of the necessity for some fresh legislation. This amendment also was lost by a large majority. A vote was taken on the resolution of the council to negotiate, and this was carried by a majority of 252 to 17.

A New Safety Code for Anesthetic Apparatus

The Medical Defense Union, which has had to deal with many legal actions following the fatal administration of anesthetics, recently arranged a conference to discuss methods of minimizing errors in the use and assembly of anesthetic apparatus. A committee was formed consisting of representatives of the union, the Association of Anesthetists and the manufacturers of anesthetic apparatus and gases. The committee has put forward both a short term and a long term policy. The former includes plans for the distinctive marking of cylinders and pipes, planned storage, and the selection and instruction of personnel. The long term policy calls for a complete system of noninterchangeable connections for gas apparatus, which will make wrongful coupling impossible. But this will require the introduction and universal use of a new type of cylinder valve, with consequent changes of the apparatus attached to the cylinders. Until such time as this foolproofing can be done, the risk of a wrong connection must remain, but a code has been formulated which should reduce the risk to a minimum.

A British Standard Code of Practice has been prepared under the authority of the Chemical Engineering Divisional Council in response to the joint request of the Medical Defense Union and the Association of Anesthetists. This code lays down a color scheme for cylinders used for anesthetic gases, oxygen therapy and other medical purposes. Thus for a cylinder containing carbon dioxide for inhalation the upper three fourths is sea green and the lower fourth black; for making snow the cylinder is sea green throughout. For cyclopropane the color of the cylinder is aluminum, for ethylene mauve, for helium brown, for nitrous oxide black, and for oxygen black with a white shoulder. It is also recommended that no cylinder should be encased in any covering; that the encircling label should be in the characteristic color with the name of the gas. The visible connecting tubing should also bear the identification color.

OSLO

(From a Special Correspondent)

Jan. 8, 1947.

Is Pleurisy with Effusion an Indication for Artificial Pneumothorax?

Two studies undertaken in different hospitals in Norway suggest that the answer to this question is still to a certain extent in dispute. Drs. Anton Jervell and Boye Istre of the Vestfold Hospital have undertaken a follow-up study of 143 cases of primary exudative pleurisy after an observation period of one to five years and with a subsequent tuberculosis morbidity of 7.7 per cent. A close analysis of the 11 patients developing pulmonary tuberculosis showed that in only 3 of them would pneumothorax treatment possibly have been of value. So they have little to say in favor of it. But Dr. P. Agnar Nilsen of the Drammen City Hospital has reexamined 138 patients with a history of primary exudative pleurisy and has come to the conclusion that pneumothorax treatment is indicated when pulmonary infiltration is demonstrable on the pleurisy side or when the sputum contains tubercle bacilli and there is no demonstrable pulmonary infiltration in the side opposite the pleurisy. His routine treatment of primary exudative pleurisy is replacement of the fluid by air under atmospheric pressure, but only on one occasion.

The Salaries of Junior Hospital Doctors

In the past the competition for hospital internships, including appointments for several years, has been so keen that hospital boards have secured these services cheaply. For that matter competition is still pretty keen in the larger hospitals. But now a coordinated movement for better pay of juniors is being sponsored by the Norwegian Medical Association, which marks with an asterisk those advertisements of hospital appointments to which an inadequate salary is attached. This asterisk tells a prospective applicant to stipulate that he will not accept the appointment unless the Norwegian Medical Association approves of it. The *Journal of the Norwegian Medical Association* frankly charges several hospital boards with sabotage in connection with the claims of juniors to a revision of their salaries.

The Prognosis for Acute Nephritis

Dr. Ruth Ramberg of the Drammen City Hospital has undertaken a follow-up study of 175 patients treated for acute nephritis in this hospital in the period 1935-1944. Ten of these patients died while still in hospital and 4 after discharge. As many as 148 subsequently underwent ophthalmoscopy and measurement of the blood pressure, the sedimentation rate and urea clearance. The urine was also carefully examined. It was found that 108 could be considered cured, while 29 were not cured and 11 had suffered from relapse. It would seem that a considerable degree of proteinuria and definite edema are signs of bad omen. As high a proportion as 89 per cent in the "cured" group had undergone some acute infectious disease before the onset of signs of nephritis.

MEXICO

(From a Special Correspondent)

Nov. 2, 1946.

Congress on Brucellosis

The first Inter-American Brucellosis Congress in Mexico City from Oct. 28 to Nov. 2, 1946 was attended by delegates from most of the American countries. Over sixty papers were presented, covering various subjects:

EPIDEMIOLOGY

A considerable diffusion of brucellosis throughout the continent has occurred during the last few years. Evans, Jordan, Schmidt and Campbell showed that the increment of human cases was due not only to better means of diagnosis but to a real increase in the occurrence of the infection. Huddleson pointed out that after the attempt to suppress bovine brucellosis in the United States through radical measures, the infection is again as extensive as before and consequently the chances of transmission to man as high as ever. Furthermore, to the bovine strains which produced the majority of human cases in the past must be added cases due to the suis and melitensis types of infection. Pasteurization of milk obviously has not been sufficient to stop brucellosis; therefore other sources of infection must be taken into account. Direct contact with infected animals is a source of infection. Man to man infection has to be taken into consideration. Evans advanced the opinion that the great adaptability of Brucella may bring about at any moment "canine strains" and even "human strains." If this occurs the epidemiology of the disease may become greatly complicated. Argentine delegates (Molinelli and his associates, Criscuolo) presented reports from which it appears that the distribution of the three types of Brucella is conditioned by that of cattle, goats and hogs. In the province of Cordoba, one of the important foci of the infection, Brucella melitensis has been found to be prevalent. It appears from the work of Purriel and his collaborators that in Uruguay infection by Brucella abortus is predominant. A similar situation has been found in Brazil by Pacheco. The cases reported from Colombia are mainly due to Brucella melitensis, which was also the cause of the infection in the few cases reported from Central America (Menendez). In Puerto Rico and Cuba (Pomales-Lebron and Martinez de la Cruz) the prevalent variety is Brucella abortus. Ortiz-Meriotte, Angelini and other Mexican epidemiologists presented brucellosis as growing into a serious public health problem. The northern and central states show considerable incidence. Surveys by means of skin tests have shown percentages ranging from 25 to 45 reacting to the antigen. According to Castañeda Brucella melitensis has been found prevalent. The disease in the city of Mexico was related to the consumption of goat's cheese, butter and cream, which are prepared from unpasteurized milk. Epidemics of brucellosis have been reported in the state of Jalisco, where raw cow's milk is consumed. It seems that the caprine organism has been adapted to bovines.

BACTERIOLOGY

Molinelli, Ithurrat and their collaborators described methods of isolation and identification of the infecting agent. They obtain better percentages of isolation by collecting the blood in citrate and then seeding in liver infusion agar with or without carbon dioxide. They recommend shaking the flasks daily. Brucella may be detected from the fourth day on. Huddleson presented studies on a new medium for isolating and growing Brucella. The organisms grow better if the medium is shaken in order to have a constant interchange of fluid and gases. It has been found that Brucella abortus for isolation requires a reduced oxygen tension (5 per cent) as well as an increased carbon dioxide (10 per cent) tension.

LABORATORY DIAGNOSIS

Various speakers indicated that the agglutination test continues to be the most useful procedure in the diagnosis of active brucellosis. The blood culture is not yet a method which can be employed outside well equipped laboratories, and the allergic and opsonic tests are of difficult interpretation. The rapid agglutination test developed by Huddleson continues to be in the favor of most physicians, while the tube test remains restricted to well equipped laboratories. The bedside test recommended by Castañeda is a screen test which may be useful in zones where no laboratory facilities exist.

The general opinion was that we lack a reliable method of detecting chronic brucellosis. Some authors rely on the skin test with the reservation that it should be restricted to cases in which clinical evidence points to a possible Brucella cause. D'Antoni stated that a "therapeutic test" which he developed has been useful for patients with intestinal brucellosis. The test consists in the administration of M. B. P. vaccine at intervals of five days, with increasing doses. Possible reactions include severe malaise, fever and flaring up of the intestinal manifestations. Schmidt, Harris and Ithurrat suggested that complement fixation might solve the problem of diagnosis.

ALLERGY

Leon, Criscuolo, Molinelli and his associates and Maldonado-Allende recommended the skin test for detecting skin allergy. Some delegates warned against the possibility of misleading reactions in persons with past contact with Brucella material. Leon stated that it is possible to detect the type of the infecting Brucella by using simultaneously melitensis and abortus antigens. Clinical papers by Maldonado-Allende, Morones and Guerroro-Ibarra described the appearance of skin manifestations related to Brucella allergy. Major allergic disturbances such as nasal and bronchial asthma and migraine were reported by Villafañe-Lastra, which were readily relieved by specific vaccine therapy.

CLINICAL PICTURE

A majority of the delegates were inclined to consider brucellosis a disease with an initial acute phase followed by a chronic phase. Variants of this general type are the acute disease not followed by the chronic stage and the chronic disease of Evans's type. Goobar advanced the opinion that the infection remains in the organism for the remainder of the life of the individual. Therefore it must be considered as a chronic disease with acute or subacute episodes which may appear at the beginning or in later stages of the infection. Brucella melitensis, which prevails in Argentina and Mexico, takes a severe course and is followed by a large variety of complications. Villafañe-Lastra, Goobar, Maldonado-Allende and Molinelli reported that, besides the well known symptomatology of acute brucellosis, there is a high incidence of bone complications and spondylitis. Guerroro-Ibarra presented a study of 800 cases of melitensis infection in Mexico City with symptoms closely conforming to the typical picture described by Hughes in 1897. Certain manifestations such as painful localizations near the sacroiliac joint have been common in Mexico. Villafañe-Lastra, Goobar and Guerroro-Ibarra emphasized the high incidence of nervous manifestations in brucellosis, such as meningomyelitis, meningitis, neuritis, blindness through lesions of the optic nerves and paralysis of various regions due to neuritis or central lesions. Mental disturbances were considered to be quite frequent.

SPONDYLITIS

Villafañe-Lastra, Di Rienzo, Maldonado-Allende and others reported experience illustrating various types of vertebral lesions observed. In several cases the observation was completed by necropsy. Di Rienzo has followed his patients year after year, and the comparison of x-ray films taken at various stages of the disease give, among other findings, information concerning the early lesions, the manner in which Brucella destroys

the vertebral body or the disks and the process of healing that is characteristic of brucellosis. Both Villafañe-Lastra and Di Rienzo emphasized the importance of the lesions of the intervertebral disks, which may become herniated and protrude either into the spinal canal or into the destroyed vertebral body.

RADIOLOGY

Di Rienzo recommended x-ray examination of all brucellosis patients regardless of actual symptomatology, since vertebral lesions may be detected at the earliest stages of the localization. Furthermore, the multiplicity of the bone lesions and the frequency of localizations in the lungs, circulatory system and joints require a systematic radiologic exploration. The exploration of the teeth was discussed by Martinez, who finds it necessary to perform careful x-ray examinations and remove all defective or infected teeth.

HEMATOLOGY

Sanchez-Yllades reported blood and bone marrow studies on 104 patients with acute brucellosis. He finds moderate anemia and normal white blood cell and lymphocyte counts and lower percentages of neutrophils. The bone marrow showed slight lymphocytosis and lower percentages of granulocytes. Gonzalez-Guzman studied 50 cases of acute and subacute brucellosis, finding a shift to the left of Arneth's index of lymphoid cells, decrease of lymphocytes with azurophilic granules and increase of the nucleolar richness, expressed by the Rn index corresponding to a greater youth of the lymphoid cells in the blood stream. Hematologic studies presented by Villafañe-Lastra indicate that there is relative or absolute increase in lymphocytes with decrease in polymorphonuclears. In a high percentage of the patients the total number of leukocytes has been lower than normal.

PATHOGENESIS

Castañeda discussed the pathogenesis of brucellosis, considering the intracellular growth of Brucella. He followed the organism through the stages of the acute experimental infection, finding it within macrophages, fibroblasts, endothelial and reticular cells, interstitial cells of the testis, alveolar cells and others. A cell to cell propagation of the infection was considered a possible explanation for the survival of the organism in spite of the high degree of immunity of the host. The constant discharge of antigenic material may be responsible for the general and local reactions observed in subacute and chronic brucellosis. The intracellular position of Brucella would prevent the action of antibodies and chemotherapeutic agents. This manner of understanding the pathogenesis would explain most of the symptoms and complications observed in brucellosis.

PATHOLOGY

Mazza reported that the main lesions found in men were in the spleen, where the lesions consist of hyperemia, hyperplasia and epithelioid hypertrophy of the splenocytes are so frequently seen that the author considers them characteristic of brucellosis. In the liver he finds fatty degeneration; the Kupffer cells are hypertrophic, and their phagocytic properties are increased. The kidney shows glomerulonephritis. Nyka, who works with Castañeda, found that guinea pigs inoculated intratesticularly developed panorchitis with an initial proliferating and a terminal suppurating stage. In mice inoculated intranasally, interstitial pneumonia developed, killing some of the animals in forty-eight hours. The spleen, liver, kidneys and brain showed inflammatory lesions of nodular type or foci of necrosis. Some of the pathologic aspects in experimental brucellosis were similar to those found in man by Mazza and himself. Nyka records 3 cases of fatal subacute brucellosis by Brucella melitensis, and all 3 showed considerable damage in the kidneys, spleen and liver. The main interest in Nyka's paper is the demonstration of the correlation of Brucella with the lesions and the constancy of the intracellular growth of the organism. However, in some necrotic spots Brucella was found extracellularly.

THERAPY

Several speakers have used successfully vaccine prepared with Brucella abortus in the treatment of subacute and chronic cases. Moss used detoxified vaccines, while other authors applied small doses of the bacterial suspensions with the main purpose of desensitizing the patients rather than increasing the immunity. Carrillo-Cardenas reported the results of eight years' experience in Castañeda's service at the Mexico General Hospital, using M. B. P. as a desensitizing agent. A group of 600 cases were reported cured by this method; in 30 cases the treatment was of little or no help, and there were 10 fatal cases having persistent bacteremia and severe complications. Information gathered from various physicians using M. B. P. in Mexico and in the United States indicates that desensitization relieves the patients.

D'Antoni reported satisfactory results in desensitizing patients suffering from intestinal brucellosis (a form of the chronic infection). He used M. B. P. (soluble antigen prepared from Brucella). Cases of amebiasis occurring in persons afflicted with chronic brucellosis were prompt and permanently cured by the combined treatment of amebiasis and brucellosis.

Considering the intracellular life of Brucella, Castañeda stated that in the subacute and chronic phases of the disease all one may expect at present is to reduce the hypersensitivity of the patients, modifying the course of the disease by lowering the intensity of the general and local reactions. In his experience most complications are prevented by systematic elimination of foci of secondary infection.

BLOOD THERAPY

Mena-Brito warned against the use of so-called immune transfusions, since Brucella may be found in the blood of apparently immune donors. He has observed shock in patients after immune blood transfusion or intravenous plasma therapy. However, Videla considers immune plasma useful in the treatment of his patients.

CONTROL OF BRUCELLOSIS

Epidemiologists from the most seriously affected zones of Mexico supplied information concerning plans for the organization of a campaign for the control of Brucellosis appropriate to each region, since general regulations have failed. Goobar and Oulton presented a plan for a large scale campaign in the province of Cordoba, Argentina. The plan is based in the organization of special boards for the direction of the campaign, vaccination with suitable vaccines and segregation of positive reactors. These recommendations would be enacted into law regulating the transportation of cattle, sanitary certification of breeders and other measures aiming at promoting the maintenance of healthy herds; tax exemption to encourage pasteurization plants, clinical examination of animals, and so on. Finally, the sale of unpasteurized dairy products is prohibited.

Most delegates agreed that a wide educational campaign, particularly among persons living in contact with goats and hogs, is highly necessary. It became apparent that we are far from a good plan for the control of brucellosis in animals.

Huddleson suggested that vaccination as a widespread measure should be held up until a suitable vaccine is developed that will immunize adult animals. Such a vaccine should be effective without causing blood changes that will confuse the diagnosis of the disease. He discussed experiments carried out in Michigan, where vaccination with one of the "mucoid" phases of Brucella suis appears to check the spread of the disease in susceptible animals in recently infected herds of cattle. Many reacting animals that are treated with the vaccine become negative to the agglutination test. The vaccine does not cause the development of a high serum agglutination titer. The non-infected animals become negative to the agglutination in from sixty to ninety days after treatment.

Correspondence

CANCER TREATMENT BY AUTOVACCINATION

To the Editor:—In the editorial comment on "Cancer Treatment from Russia" in the January 11 issue of THE JOURNAL you stated that according to a release (*U. S. S. R. Information Bull.* **6**:12 [Oct. 23] 1946) from the Russian embassy a method of autoinoculation of human cancer was used by Krasheninnikov with promising results and that this method was based on observations made by Besredka.

The Russian author undoubtedly referred to the work which I did with Besredka at the Pasteur Institute in Paris (Besredka, A., and Gross, L.: *Ann. Inst. Pasteur* **55**:402, 491, 1935; **57**: 343, 1936; **60**:5, 465, 1938; **62**:253, 1939). In these studies we observed that the intradermal implantation of an appropriate dose of tumor cell suspensions into susceptible animals results in the development of cutaneous tumors that may spontaneously regress. The spontaneous regression of such intradermal tumors is accompanied with the establishment of an active immunity directed specifically against the particular tumor which was used for the inoculation. Such spontaneous regression of the implanted tumors with the resulting immunity readily occurs in the case of certain tumors such as the Brown-Pierce epithelioma in rabbits, but this occurs with less frequency in the case of other neoplasms, such as certain sarcomas in mice and chickens.

In any event, only preventive immunization was possible. The question immediately arose in our minds, however, whether a similar immunity could not be produced in animals that already had tumors—that means whether a therapy of tumors could not be attempted by autovaccination. Accordingly, a series of experiments was performed for the purpose of determining an answer to this question. It can be stated briefly that all these experiments gave negative results and that in no case an animal that already was carrying a tumor could be immunized by means of the intradermal method against its own neoplasm.

Our experiments were not limited to animals; in a few cases we also inoculated patients that had tumors with their own neoplasms. The experiments on human beings were of course limited to persons who already had metastatic tumors so as not to endanger them by these studies (*Cancer Research* **4**:293, 1944). In these few instances in which we inoculated human beings with their own tumors it was found that the implants appeared within several weeks after the intradermal inoculation and that these implants then grew rapidly so that they had to be promptly removed. There was no evidence whatever of any spontaneous regression of either these implants or the primary neoplasms.

Similar experiments were also made by the French surgeon T. de Martel (*Bull. et mém Soc. nat. de chir.* **60**:1390, 1934), who transplanted carcinoma of the breast in 3 patients and carcinoma of the bowel in 1 patient under the skin of the abdomen and each into the patient in whom it had originated. A latent period of approximately five months was observed in all 4 instances; after that time had elapsed, however, the implants began to grow very rapidly so that they had to be destroyed by x-rays. No evidence of a spontaneous regression of either the implanted tumors or the primary neoplasms could be observed in these cases.

We have performed additional studies on animals along this line, and there appears little doubt, if any, that under the present conditions of experiments an autoinoculation of a tumor may only lead to the establishment of an artificial metastasis. For that reason the news on the autovaccination experiments of Krasheninnikov should be regarded with criticism. Experiments thus far performed appear to indicate that autoinoculation of untreated cancerous tissue in man, be it wrapped in a piece of omentum (as the Russian author suggests) or not, be it into or under the skin, is highly dangerous. The result can only be the artificial creation of a progressively growing metastatic tumor.

LUDWIK GROSS, M.D., New York.

USE OF AMPHETAMINE SULFATE IN MANAGEMENT OF OBESITY

To the Editor:—Dr. S. Charles Freed deserves a great deal of praise for his intelligent and practical approach to the treatment of obesity.

There has been considerable criticism relative to the use of amphetamine sulfate for this purpose because of unpleasant side reactions, toxic manifestations and the possibility of addiction. Also there are some who feel that it is useless with respect to controlling appetite.

I agree with Dr. Freed and wish to emphasize the value of amphetamine sulfate in managing obesity in children. Over a number of years I have experienced no serious untoward reactions or addiction in several hundred cases. In my original report (Experience with Benzedrine Sulfate in the Management of Obesity in Children, *J. Pediat.* **17**:490 [Oct.] 1940) no remarkable effects on basal metabolic rate, blood pressure and pulse rate were noted, and unpleasant reactions such as nervousness, insomnia and occasional abdominal pains can be controlled with barbiturates.

Recently Dr. Heinrich Necheles and I studied the effect and mechanisms of amphetamine sulfate on weight reduction (Studies on the Effect and Mechanism of Amphetamine Sulfate on Weight Reduction, *Am. J. M. Sc.* **205**:820 [June] 1943). We believe that the psychic effects of amphetamine plus depression of gastric hunger motility and of hunger can explain the ability to control appetite and food intake in the obese child.

There is no question that the psychogenic factor in obesity is of paramount importance. In the treatment of children in particular the problem of controlling appetite is extremely difficult. The will power is usually poor and adherence to a low caloric diet is difficult. In many hospitals and clinics psychiatric consultation is available and psychotherapy is practical at little or no expense to the patient. In private practice however the problem is different. Usually such treatment is not readily available or may be a financial burden on the family. Under such circumstances the family physician or pediatrician must practice his own psychotherapy to his best ability. Amphetamine sulfate is a valuable adjunct.

RALPH H. KUNSTADTER, M.D., Chicago.

PENICILLIN AS A BLOOD COAGULANT

To the Editor:—Supplementing my letter of January 24 regarding the effectiveness of penicillin as a blood coagulant, today I found in THE JOURNAL February 1, page 354, under Current Medical Literature, the review of an article published in the *Giornale di Medicina*, Palermo: "Fradà directs attention to the frequency of embolism of the large blood vessels occurring in the course of penicillin therapy in acute and subacute endocarditis. . . . The author believes that penicillin increases coagulability of the blood."

MORT D. PELZ, M.D., St. Louis.

CAUDAL ANESTHESIA

To the Editor:—My attention has been drawn to your editorial comment on caudal anesthesia in the January 25 issue of THE JOURNAL.

I recall the several favorable references on this form of obstetric relief that appeared in your columns shortly after Hingson and Edwards first announced their method. At that time I wrote a word of warning against the acceptance of the method as a safe procedure, calling attention to one maternal death in approximately every 1,600 cases, having occurred in 15,950 deliveries performed under this form of analgesia. Four of these deaths, one of which happened in their own hands, were included in the 10,000 case reports of Hingson and Edwards. In the same report they cited two fetal deaths attributed to the method. Also at that writing I mentioned two fetal disasters that occurred at our clinic at Indiana University.

During the past three years I have known of five additional maternal deaths, one of which occurred within the past year at one of the larger Chicago teaching centers. In this instance the administrator of the analgesia had had an experience of over 800 cases and therefore properly could have been considered an expert. Following this death the institution has discontinued the method.

With the resulting continued mortality I cannot refrain from once again raising a strong note against caudal anesthesia in obstetrics as a safe procedure.

The current editorial indicates the success of the method by referring to its low incidence of failure, 5.3 per cent. Although this percentage is comparable to that of other methods, it does not include the relatively high percentage of patients eliminated because of clinical and anatomic reasons.

While many of the advantages of caudal anesthesia can be highly stressed, emphasis should by no means be placed on its simplicity and safety.

C. O. MCCORMICK, M.D., Indianapolis.

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, Mar. 8, page 716.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various centers, March 17-19. *Part III.* Various centers, June. Durham, Oct. 21-23. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Oral.* Los Angeles, April 11-12. Sec., Dr. P. M. Wood, 745 Fifth Ave., New York.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral.* New York City, April 25-27. Sec., Dr. George M. Lewis, 66 E. 66th St., New York 21.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written.* Chicago, March 17. *Oral.* Philadelphia, June 5-7. Final date for filing application is April 1. Asst. Sec., Dr. W. A. Werrell, 1 W. Main St., Madison 3, Wis.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part II.* Pittsburgh. June 1-7. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 7-11. Sec., Dr. D. M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PATHOLOGY: Philadelphia, June 3-4. Final date for filing application is April 15. Sec., Dr. Robert A. Moore, Euclid Ave. and Kings Highway, St. Louis 10.

AMERICAN BOARD OF PEDIATRICS: Effective May 1, application fee will be $125.

AMERICAN BOARD OF RADIOLOGY: Atlantic City, June 4-8. Final date for filing application is April 1. Sec., Dr. B. R. Kirklin, 102-110 Second Ave., S. W., Rochester.

AMERICAN BOARD OF UROLOGY: Chicago, February. Final date for filing application is Nov. 1. Sec., Dr. G. J. Thomas, 1409 Willow St., Minneapolis 4.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Privileged Communications: Testimony of Consulting Physician.—This was an action to recover damages for personal injuries resulting from the alleged negligence of the defendant employer. After a verdict for the plaintiff, the defendant filed a motion for a new trial, which was heard by the U. S. district court, D., fifth division, Minnesota.

In arguing his motion, the defendant contended, among other things, that the trial court erred in rejecting certain testimony which he offered. It appeared that Dr. McHaffie, employed by the defendant, attended the plaintiff on his arrival at the hospital and during the period of his convalescence. Irrespective of the source of employment, said the court, the doctor attended the patient in a professional capacity, and the relation of physician and patient existed. The information obtained by Dr. McHaffie in that capacity was therefore privileged, if the patient desired to claim it, under section 9814(4), Mason's Minnesota Statutes 1927, which provides:

> A licensed physician or surgeon shall not, without the consent of his patient, be allowed to disclose any information or any opinion based thereon which he acquired in attending the patient in a professional capacity and which was necessary to enable him to act in that capacity. . . .

But Dr. McHaffie was called by the plaintiff as an adverse witness, said the district court, and the privilege as to him was thus waived so there was no question as to the admissibility of his testimony. Seven weeks after the accident, however, Dr. McHaffie and Dr. Dittrich called at plaintiff's home for an examination and consultation. The testimony of the latter was offered by the defendant and an objection thereto by the plaintiff sustained on the ground of the privilege. The defendant contended, on motion for a new trial, that the plaintiff waived his right to object to the testimony of Dr. Dittrich by waiving the privilege as to Dr. McHaffie.

The oral examination of Dr. Dittrich pertaining to the relationship of physician and patient revealed that Dr. Dittrich examined the plaintiff on Feb. 5, 1946 at the request of Dr. McHaffie for the purpose of advising about treatments for him; that the doctors discussed the matter and that Dr. Dittrich made some suggestions regarding the treatment and that he went there "just like you would go to any patient that you were called to take care of." Dr. McHaffie also called Dr. Haukom for consultation and to read x-ray films while the plaintiff was at the hospital, but his testimony was not offered at the trial. If these doctors were called for consultation and for advice in the treatment of the plaintiff, said the court, ordinarily they would not be permitted, over the objection of the patient, to divulge what they learned. The defendant argued, however, on the basis of a prior Minnesota case that an examination and treatment of a patient by two or more physicians or surgeons was an unitary affair and that, where the patient permits one of them, as his own witness, to testify as to the whole matter, privilege is waived. The district court noted, however, that the courts of many other jurisdictions have held that the privilege under the statute is not waived by permitting one of two or more attending physicians to testify on the theory that the privilege extends to the individual witness and not to the consultation or transaction in which the physician was engaged. Citing with approval a prior Idaho case the district court said that "the decided weight of authority is in favor of the view that a waiver of the privilege as to one physician does not waive the privilege as to any other physician. It is also very clear that our [Idaho] statute forbids and prohibits the examination of a physician without the consent of the patient, and this privilege extends to the individual witness and not to the consultation or transaction in which he was a physician. In other words, each individual physician is a witness within the meaning of this statute, rather than a number of physicians who may be present or participate in a consultation, being treated as one witness. . . ." On principle, said the district court, the basis of the

rule is sound. A patient may attend a clinic or hospital to consult an individual physician. While there, other physicians, for the best of reasons, may be called into consultation. Possibly the one called is at the time the duly appointed physician of some person having interests adverse to that of the patient. The physician called for consultation should refuse either to serve or to violate the privilege resulting from the relation of physician and patient. After the examination has been made the privilege should be respected.

Accordingly, the court ruled that the plaintiff's privilege as to Dr. Dittrich had not been waived by allowing Dr. McHaffie to testify and that the motion for a new trial must be overruled.—*Tweith v. Duluth, M. & I. R. Ry. Co., 66 F. Supp. 427 (Minn., 1946).*

Medical Practice Acts: Chiropractic as Practice of Medicine.—The plaintiff, State Board of Medical Examiners of New Jersey, filed a complaint charging that the defendant practiced medicine in the state of New Jersey without first having obtained a license authorizing him so to do. The trial court, without a jury, held that the defendant did not practice medicine, from which judgment the plaintiff appealed to the supreme court of New Jersey.

The uncontradicted evidence showed that the defendant was licensed to practice chiropractic in Kentucky and Nevada but was not licensed to practice either medicine or chiropractic in New Jersey. He held himself out as a chiropractor and practiced accordingly, however. While engaged in such practice, the defendant was visited by two female investigators employed by the plaintiff board, each of whom complained of a "lame back," made arrangements with the defendant for a fixed period of treatments and paid him $15 on account. They also signed contracts which, among other things, emphasized that defendant did not, as a doctor, treat, operate or prescribe but, as a chiropractor, merely adjusted the spinal column. Under these contracts the defendant treated one witness eleven times and the other three times, during the course of which the defendant took x-rays of each witness, took neurocalometer readings of the neck and spine and gave each various chiropractic treatments.

The defendant contended that he did not practice medicine "in its true sense" within the meaning of the statutes but that what he did constituted the practice of chiropractic. The position taken by the defendant is without merit, said the court, for the defendant did not in fact practice chiropractic within the statutory definition of that term. The practice of chiropractic is defined as "the detecting and adjusting, by hand only, of vertebral subluxations." Clearly, the defendant's manner or method of treatment embraced extra instrumentalities. However desirable the use of such instruments may be, their use is not treatment by hand only. Moreover, continued the court, the statute provides that ". . . the practice of medicine . . . shall be deemed to include, inter alia, the practice of . . . chiropractic. . . . No argument to the contrary, however ingenious, can cloud the clear and explicit classifications into which the legislature placed the practice of chiropractic. The provisions which defendant allegedly violated are those which the legislature defined as constituting the practice of medicine and those which define a penalty for so practicing without a license. The reason for such statute is simply to make abundantly clear that the legislature intended to include the practice of chiropractic within the meaning of the practice of medicine as set forth in the statutes. Thus, the court concluded, whether, as claimed by defendant, one who practices chiropractic merely analyzes and adjusts the ailment, while one who practices medicine diagnoses and treats the ailment, the end result, apart from the play on words, is that each undertakes by his particular means or methods to relieve the patient from his ailment or disease. That is practicing medicine within the meaning of the statutes as charged.

Furthermore, the court continued, there is nothing in the proofs adduced and the law applicable thereto to support the defendant's claim that the inclusion of the practice of chiropractic within the meaning of the practice of medicine operated unreasonably to deny his asserted rights under the state and federal constitutions. In a prior Louisiana case which was affirmed by the Supreme Court of the United States it was held that "to practice chiropractic is to practice medicine" and that such holding did not violate the chiropractor's rights under the state constitution and under the federal constitution.

Accordingly, the court having determined that the trial judge erred as a matter of law in determining that the defendant had not illegally engaged in the practice of medicine, the judgment in favor of the defendant was reversed.—*State Board of Medical Examiners v. Grossman, 48 A. (2d) 700 (N. J., 1946).*

Medical Motion Pictures

NEW FILMS ADDED TO A. M. A. LIBRARY

The following medical motion pictures have been added to the American Medical Association library of films:

HYDROTHERAPY.

16 mm. Black and white. Sound.

Running time twenty-two minutes.

Film shows how to administer sedative baths (Nauheim and continuous flowing) and wet sheet packs; tonic showers, douches and sprays; special types of therapeutic baths; rehabilitation hydrotherapy in the Hubbard bath and rehabilitation pool, and the physiologic effects of hydrotherapy on the body.

RADIOTHERAPY: HIGH DOSAGE TREATMENT.

16 mm. Black and white. Sound.

Running time seventeen minutes.

Film explains the nature of x-rays, the varying degrees of penetration of low voltage and high voltage rays, and the effect of x-rays on human tissue and shows how the nurse technician prepares a patient and administers an x-ray treatment, and how radon seeds are sterilized and implanted in diseased tissue.

RECREATIONAL AND OCCUPATIONAL THERAPY.

16 mm. Black and white. Sound.

Running time thirteen minutes.

Film shows recreational and occupational activities fitted to the patient's condition; passive diversion during an immobile state following traumatic injury; limited physical activities carried on in bed; individualized occupational therapy as supervised by the nurse; group occupational work in hospital and community, and social recreation projects.

THERAPEUTIC USES OF HEAT AND COLD. PART I: ADMINISTERING HOT APPLICATIONS.

16 mm. Black and white. Sound.

Running time twenty-one minutes.

Film explains the nature of heat and shows how it is transferred by conduction, conversion and convection; explains body reactions to heat and the use of these reactions in the alleviation of pain; shows how to apply hot water bottles, electric pads, chemical pads and paraffin bath; how to use hot soak, compresses, infra-red lamp and short wave diathermy, and precautions which must be taken when applying heat.

THERAPEUTIC USES OF HEAT AND COLD. PART II. ADMINISTERING COLD APPLICATIONS.

16 mm. Black and white. Sound.

Running time twenty-two minutes.

Film shows the body's responses to cold stimuli and how these responses are used to alleviate pain; how to administer contrast baths and ice bags; how to apply ice packs as anesthesia, and how to use refrigerating blankets and cold chamber.

THE DIODE.

16 mm. Black and white. Sound.

Running time seventeen minutes.

Film explains the principles of electron flow across a gap; basic features of the diode tube; control of electron flow in the tube; photoelectric cells; x-ray tubes, and the diode as a rectifier.

THE TRIODE.

16 mm. Black and white. Sound.

Running time fourteen minutes.

Film reviews the diode principle; explains the electric field in a diode; electric field in a triode; a triode amplifier circuit; amplification of direct current voltage changes; amplification of alternating voltages; distortion; amplification of audio frequency signals, and reviews the triode principle.

These films, produced in 1945 by the Division of Visual Aids, U. S. Office of Education, are available on a loan basis from the American Medical Association to medical societies, medical schools, hospitals, and other scientific groups. The transportation charges (both ways) will be paid by the borrower. Requests should be submitted as far in advance as possible to the Secretary, Committee on Medical Motion Pictures, American Medical Association, 535 North Dearborn Street, Chicago 10.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Practitioner, Philadelphia

1:113-168 (Nov.) 1946

Vitamin Deficiency Diseases in Infants. H. Bakwin.—p. 113.
Treatment of Peptic Ulcer, with Special Reference to Vagotomy. J. M. Ruffin and R. C. Smith.—p. 118.
Significance and Management of Obstructive Factor in Cardiac Asthma and Cardiac Dyspnea. H. E. Heyer.—p. 121.
Heart in Thyroid Disease. E. Rose.—p. 125.
Anuria. E. H. Barksdale.—p. 133.
Spontaneous Pleural Effusions. E. W. Custer and R. E. Evers.—p. 138.
Endemic Typhus Fever. J. L. Chestnut.—p. 141.
Diagnosis of Cerebral Aneurysms. B. J. Alpers.—p. 146.
Neurodermatitis. H. Alden and J. W. Jones.—p. 151.
Psychosomatic Diagnosis. E. Weiss.—p. 156.

Journal of Bacteriology, Baltimore

52:617-722 (Dec.) 1946. **Partial Index**

Application of Walker's Index of Functional Normality to Study of Developing Chick Embryos Infected with Levaditi Strain of Vaccinia. R. E. Hoffstadt and Helen B. Tripi.—p. 617.
Two New Amino Acid Fermenting Bacteria, Clostridium Propionicum and Diplococcus Glycinophilus. B. P. Cardon and H. A. Barker. —p. 629.
*Bactericidal Detergent for Eating Utensils. A. F. Guiteras and Rebecca L. Shapiro.—p. 635.
Amount of Enzyme Inactivation at Bacteriostatic and Bactericidal Concentrations of Disinfectants. Martha H. Roberts and O. Rahn.—p. 639.
Studies on Highly Soluble Azo Sulfonamides. C. A. Lawrence, H. Klingel and G. R. Goetchius.—p. 645.
Viability of Dried Skim Milk Cultures of Lactobacillus Bulgaricus as Affected by Temperature of Reconstitution. M. L. Speck and R. P. Myers.—p. 657.
Fatty Material in Bacteria and Fungi Revealed by Staining Dried, Fixed Slide Preparations. K. L. Burdon.—p. 665.
Disparity in Appearance of True Hansen's Bacilli and Cultured "Leprosy Bacilli" When Stained for Fat. K. L. Burdon.—p. 679.
*Comparative Action of Extract of Brain Tissue and Penicillin on Staphylococcus Aureus Infections. L. G. Nutini and Eva Maria Lynch. —p. 681.

Bactericidal Detergent for Eating Utensils.—Guiteras and Shapiro believe that an ideal dishwashing compound would be one that combines the detergent properties of the anion active agents with the bactericidal properties of the cation active. Since these two types of surface active agents are incompatible it is impossible to combine them, because they would neutralize each other. The purpose of this investigation was to develop a detergent suitable for washing and sanitizing eating utensils. It was found that when cation active agents are used as bactericides in detergent compositions it is essential that the detergent be emulsifying but not saponifying. If the alkalinity of the detergent is sufficiently high to saponify fat, the resulting soap will inactivate the cation active agent and render the solution completely ineffective germicidally.

Action of Brain Tissue Extract and Penicillin on Staphylococcic Infections.—Nutini and Lynch say that for a number of years their laboratories have investigated the effects on bacterial growth of certain substances obtained from plant and animal sources. Extracts of beef spleen, heart, kidney and brain were effective against Staphylococcus aureus infections. The mortality in experimental animals receiving S. aureus and the brain extract subcutaneously was 0.9 per cent in the prophylactic series of 223 animals and 3 per cent in the therapeutic series of 116 animals, mortality in the control series being respectively 75 and 87 per cent. The present paper is a report of the comparative value of brain extract and penicillin as therapeutic and prophylactic agents against S. aureus in vivo. From the evidence presented it is apparent that there is in brain tissue a factor that functions effectively against Staphylococcus aureus in vivo. Whether the extract is used as a prophylactic or therapeutic measure, it is superior to penicillin in the dosages used for Staphylococcus aureus infections in these experiments.

Maine Medical Association Journal, Portland

37:303-332 (Dec.) 1946

Psychogenesis of Bronchial Asthma. D. L. Kyer.—p. 303.
Progress in Handling Surgical Diseases of Colon. E. H. Risley.—p. 312.

New York State Journal of Medicine, New York

46:2687-2796 (Dec. 15) 1946

What Has Thiouracil Contributed to Management of Graves' Disease. R. W. Rawson and Janet W. McArthur.—p. 2733.
Exacerbations and Remissions of Symptoms in Posterior Fossa Tumors in Children. H. R. Merwarth.—p. 2742.
Treatment of Amenorrhea and Sterility by X-Ray Therapy. I. I. Kaplan.—p. 2746.
Effects of Demerol in Obstetrics. W. M. Mallia.—p. 2753.
*Surgical Treatment of Dysmenorrhea. C. J. Duncan.—p. 2757.

Surgical Treatment of Dysmenorrhea.—According to Duncan dysmenorrhea is divided into two main groups: the essential, unassociated with demonstrable pelvic disorder and the secondary, in which some organic reason for the pain can be found. Section of the superior hypogastric plexus has been employed in recent years for the essential cases with dramatic results. Whether the excision of the presacral nerve accomplishes its effect by interruption of the true sensory pathways or because of changes in the vascularity of the fundus is debatable. When limited to cases of true uterine colic or so-called miniature labor, adequate presacral resection gives most comforting results. Secondary dysmenorrhea in the younger group may be treated conservatively with a high expectation of secondary surgery. Secondary dysmenorrhea in the older group should be treated by total hysterectomy and bilateral salpingo-oophorectomy.

Northwest Medicine, Seattle

45:885-968 (Dec.) 1946

Penicillin in Neurosyphilis. E. C. Clark and W. J. Moersbel.—p. 913.
Sulfonamide Therapy. J. W. Haviland.—p. 918.
Diagnosis of Hypoglycemia Neurosis with Minnesota Multiphasic Personality Inventory. T. W. Houk and Yvonne Robertson.—p. 923.
Intussusception Occurring After Intubation of Small Intestine: Report of Case. H. M. Nichols.—p. 924.
Jaundice: Evaluation of Diagnostic Methods. E. P. Lasher Jr.—p. 926.

Occupational Medicine, Chicago

2:285-420 (Oct.) 1946

Functions of Civilian Medical Division of War Department: Condensed Report, 1942-1946. F. C. Smith.—p. 285.
*Ragweed Dermatitis. B. J. Slater, J. L. Norris and N. Francis.—p. 298.
Research in Industrial Medicine in Great Britain at War. D. Hunter. —p. 301.
*Fibromyositis, Including Its Industrial Implications and Special Reference to Referred Pain. F. W. Slobe.—p. 329.
Control of Heat in Industry. W. Machle.—p. 350.
Suggested Plan for Preventive Medical Program in Federal Employees' Health Service.—p. 360.

Ragweed Dermatitis.—According to Slater and his associates the rash of ragweed dermatitis is usually distributed on the exposed surfaces of the body such as the face, neck, forearms, hands, legs and feet but may, like other forms of dermatitis venenata, involve the whole body. An important factor in the diagnosis is the seasonal incidence and recurrence. Symptoms usually appear in August and end with the frost, corresponding with the period of pollination of ragweed; however, the eruption may appear as early as May, when the ragweed plant begins to grow, and may continue well up to November, as the ragweed plant maintains its vitality up to that time. The best advice to give a patient who is afflicted with ragweed dermatitis is to go to a place where ragweed does not grow. If this is not possible, the treatment of choice is by oral desensitization, the ragweed oleoresin being used in corn oil.

Fibromyositis and Referred Pain.—Slobe asserts that ailments classed under the broad grouping of "fibromyositis" are among the commonest diseases of adults. They are neither confined nor peculiar to industry. Their industrial significance arises from the frequency of involvement among the age groups employed in industry, the frequency of actual or alleged asso-

ciation with strains, sprains, contusions, continued exertion and minor repetitive motions, the vast number of lost workdays and the huge amount of impaired efficiency caused by these ailments. The author defines fibromyositis as a localized (occasionally diffuse) area of infiltration. The causation is not known. Referred pain and tenderness are frequent manifestations and are likely to cause errors in diagnosis. Characteristics of referred pain from the four most frequent sites of origin are described, namely the dorsolumbar region, the lower part of the back, the shoulder girdle and upper dorsal region and the cervical region. Special emphasis is placed on the diagnostic and therapeutic value of injections of procaine hydrochloride.

Oklahoma State Medical Assn. Jour., Oklahoma City

39:443-486 (Nov.) 1946

Erythema Multiforme with Unusual Manifestations. J. Stevenson.—p. 443.
Value of Anteroposterior Lordotic Film of Chest. J. R. Danstrom.—p. 445.
Fatigue States Associated with Endocrine Disorders. H. H. Turner.—p. 447.
Pioneer Users of X-Rays in Oklahoma. P. E. Russo.—p. 450.

39:487-542 (Dec.) 1946

Obstetrician's Responsibility to Newborn, with Especial Consideration of Asphyxia. R. E. Emanuel.—p. 489.
Perennial Nasal Allergy in Children. W. W. Arrendell.—p. 493.
Typhoid Vaccine for Induction of Fever in Neurosyphilis. P. Jones and J. H. Lamb.

Phillippine Medical Association Journal, Manila

22:287-312 (July) 1946

Report of First Case of Intestinal Heterophyidiasis Diagnosed in Life in Philippines. P. D. Gutierrez, A. A. Lozano and T. P. Pesigan.—p. 287.
Amebiasis in Children in City of Manila, with Report of 41 Cases. A. V. Tubas, A. P. Jongco, D. F. Dauis and J. O. Chan.—p. 293.
*Ascaris in Common Bile Duct: Report of 10 Cases. F. Guzman and P. Morales.—p. 299.

Ascaris of Common Bile Duct.—Guzman and Morales report 10 cases in which Ascaris was found in the common bile duct during operation. The history and symptoms were characteristic of a gallbladder disease. Since gallbladder disease was coexistent with the presence of Ascaris, the authors advance the hypothesis that a preexisting gallbladder disease attracts the parasite into the common bile duct or at least makes it possible for the wandering worms to penetrate into the biliary system by causing a dysfunction in the sphincter of Oddi which normally would impede such an entrance. In the presence of a gallbladder disease, the removal of the parasites alone will not cure the disease; the gallbladder may also have to be removed.

Public Health Reports, Washington, D. C.

61:1757-1796 (Dec. 6) 1946

Guide for Disposition of Persons with Abnormal Pulmonary Findings on X-Ray Films. H. F. Hilleboe and J. Holm.—p. 1759.
Variation with Age in Frequency of Tuberculous Pulmonary Calcification. R. H. High and H. B. Zwerling.—p. 1769.
*Calcifications in Spleen: Occurrence in Histoplasmin and Tuberculin Reactors. R. H. High.—p. 1782.
Rehabilitation. J. Galsworthy.—p. 1786.

61:1797-1832 (Dec. 13) 1946

Skin Reaction in Rabbits Produced by Intradermal Inoculation of Suspensions of Killed Pasteurella Tularensis. C. L. Larson.—p. 1797.
Duration of Toxicity of Several DDT Residual Sprays Under Conditions of Malaria Control Operations. F. L. Knowles and C. S. Smith.—p. 1806.
Potassium and Sodium Metaphosphates as Sources of Phosphorus for Animals. H. F. Fraser, E. R. Smith and W. C. White.—p. 1810.

Calcifications in Spleen in Histoplasmin and Tuberculin Reactors.—High says that, although it is recognized that calcifications of the spleen can be produced by phleboliths, parasitic infections, abscesses, arteriosclerotic plaques, perisplenitis, infarcts, hemorrhage and many other conditions, tuberculosis in the opinion of most authors, is by far the most frequent cause of such calcifications. Twenty instances of splenic calcification were observed as incidental findings in a survey conducted in Kansas City, Mo. Tuberculosis did not seem the most frequent cause of such calcifications. The frequency with which splenic calcifications were noted in histoplasmin reactors suggests that the agent producing the sensitivity to histoplasmin is frequently responsible.

Quart. Bull. of Sea View Hosp., Staten Island, N. Y.

8:187-278 (July) 1946

*False Acid Fast Bacilli: Fat-Coated Saprophytes in Wound Treated with Sulfathiazole Ointment. A. Berczeller and Grace Frank.—p. 187.
*Significance and Interpretation of "Doubtful" Congo Red Test. I. J. Selikoff.—p. 194.
*Revision Thoracoplasty: Study of 89 Cases. L. A. Hochberg, Ira Fink and A. Denize.—p. 205.
Diagnostic Bronchial Lavage. M. M. Bueno.—p. 212.
Streptomycin in Miliary Tuberculosis with Tuberculous Meningitis: Case Report with Autopsy Findings. P. K. Bornstein.—p. 219.
Insulin Tolerance Test in Controlled and Uncontrolled Diabetes Mellitus. S. London.—p. 228.
Infection with Bacillus Pyocyaneus (Pseudomonas Aeruginosa): Review of Literature and Case Report. E. H. Robitzek and G. Prausnitz.—p. 245.

False Acid Fast Bacilli.—Berczeller and Frank report observations from which they conclude that acid fast bacilli found in specimens originating from sites treated with fatty substances should be looked on critically. Acid fast bacilli found under these circumstances may only be fat coated gram positive or gram negative saprophytes. Before conclusive diagnosis is attempted by direct examination as to the presence of tubercle bacilli, fat (ointment) treatment should be discontinued for at least seven days. When a search for tubercle bacilli is made during this interval, the smears must be treated with fat solvents before staining.

Interpretation of "Doubtful" Congo Red Test.—Selikoff maintains that Bennhold's congo red test is of great value in the diagnosis of amyloidosis despite several limitations. He shows that the criticism of the "false positive" test is misdirected. The fault lies not with the test but with its interpretation. It has been customary to regard tests showing over 40 per cent absorption as positive. There is evidence that 40 to 89 per cent absorption is not at all diagnostic of amyloidosis. Most patients who show this result have no amyloid. Less than 90 per cent absorption in the congo red test should be considered as a negative result with the realization that, in a few cases showing this, amyloid will be present. Other means of diagnosis are necessary for these cases.

Revision Thoracoplasty.—Hochberg and his associates are concerned with 89 revision thoracoplasties, patients failing to have a conversion of the sputum within a reasonable period after the initial surgical procedure was completed and who were later subjected to revision of the original operation to enhance the collapse of the lung. The causes of failure in the original operation are operation over a pneumothorax, greatly thickened parietal pleura, anterior position of cavity and paravertebral thoracoplasty, pulmonary fibrosis, inappropriate surgery and giant and/or parahilar cavities. Approximately two thirds of the patients with the supposedly favorable upper-outer segment cavities failed to convert to negative. Twenty-four of the 89 patients died. The chance of success of a revision thoracoplasty is approximately 1 in 4.

Review of Gastroenterology, New York

13:417-494 (Nov.-Dec.) 1946. **Partial Index**

*Comparative Study of Cholecystography. L. L. Frank.—p. 433.
Observations on Premedication with Various Drugs in 3,000 Gastroscopies. H. A. Monat.—p. 440.
History and Office Routine in Gastrointestinal Diseases. D. A. Meiselas.—p. 442.
Polyintolerance to Drugs and Liver Dysfunctions. M. Vauthey.—p. 446.
Socialized Medicine. W. B. Rawls.—p. 448.

Cholecystography.—This study by Frank comprises a total of 600 cholecystographic examinations. Of these, 150 were done with Priodax, 150 with Dikol, and 300 with tetraiodophenolphthalein. It seemed only fair to contrast the methods used in this proportion, as there is no essential difference between Priodax and Dikol, which are trade names for beta-(4-hydroxy-3,5 diiodophenyl) alpha-phenylpropionic acid. This substance is preferable to tetraiodophenolphthalein because disagreeable side reactions are absent. Reference is made to the surgical findings in 83 cases used as a control of the preoperative diagnoses. The necessity of repeated oral examinations is stressed when the gallbladder does not fill or fills insufficiently. The diagnostic value of the nonemptying or too slowly emptying gallbladder is doubted in cases in which no other evidence of pathologic change can be demonstrated.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2:885-930 (Dec. 14) 1946

*Diet and Canine Hysteria: Experimental Production by Treated Flour. E. Mellanby.—p. 886.
*2-Thiouracil in Treatment of Congestive Heart Failure. E. P. Sharpey-Schafer.—p. 888.
Diagnosis of Chronic Dysentery in Service Personnel: Analysis of 1,000 Sigmoidoscopies. T. C. Morton.—p. 890.
Prevention of Infant Deaths: Liaison Between Hospitals and Home Services. J. T. Lewis.—p. 893.
Observations on Vascular Injuries, with Special Reference to Value of Sympathectomy in Ligation of Main Vessels. A. M. Boyd.—p. 895.
Case of Primary Agranulocytic Angina. I. M. Librach and R. G. Cronin.—p. 897.
Effect of d-Tubocurarine Chloride on Sensation in Man. J. H. Kellgren and A. J. McGowan.—p. 898.

Diet and Canine Hysteria.—Mellanby says that canine hysteria, sometimes called running fits or fright disease, is a nervous condition in dogs that has been observed in Britain and the United States for the last twenty years. This condition can be produced experimentally in growing dogs by including in their diet flour that has been bleached with nitrogen chloride, the agene process. The same flour when untreated did not produce the nervous malady. Dogs recovered and the typical hysteria and fits stopped when the agenized flour was removed from the diet and replaced by unimproved flour.

2-Thiouracil in Treatment of Congestive Heart Failure.—Sharpey-Schafer tried to diminish thyroid activity of patients with congestive heart failure by administering 2-thiouracil. Patients with severe congestive heart failure showing no response to bed rest, digitalis and mercurial diuretics were given 2-thiouracil in doses of 1 or 2 Gm. a day over long periods. Life may be prolonged both in the low cardiac output cases (valvular and hypertensive heart disease) and in the high cardiac output cases (heart failure with emphysema). In the low cardiac output group the arteriovenous oxygen difference may decrease as well as the resting oxygen consumption. The work of the heart may be unchanged, but output is maintained at a lower venous pressure, and in relation to oxygen consumption cardiac output is relatively increased. Patients with high cardiac output heart failure with emphysema may improve sufficiently to leave the hospital in spite of permanent reduction of arterial oxygen saturation.

Edinburgh Medical Journal

53:593-656 (Nov.) 1946

Carcinoma of Rectum, Including Survey of Present Trends in Its Operative Treatment. A. J. C. Hamilton.—p. 593.
Treatment of Toxic Thyroid Disease with Thiouracil. E. M. Watson.—p. 609.
Trauma and Nervous System, With Particular Reference to Compensation and Difficulties of Interpreting Facts. J. K. Slater.—p. 623.
Treatment of Pulmonary Tuberculosis During Past Fifty Years. R. Y. Keers.—p. 643.

J. of Obst. & Gynaec. of Brit. Empire, Manchester

53:309-404 (Aug.) 1946

Some Gynaecologic Aspects of Referred Pain. G. W. Theobald.—p. 309.
Investigation of Serum Protein Balance in Normal and Toxemic Pregnant Women. E. Moller-Christensen and J. E. Thygesen.—p. 328.
*Six Cases of Venous Intravasation Following Intrauterine Lipiodol Injection. Alice Bloomfield.—p. 345.
Spinal Analgesia for Forceps Delivery in Abnormal Labor. A. F. Anderson.—p. 347.
Calcium and Phosphorus Metabolism in Pregnancy: Survey Under War and Postwar Conditions. E. Obermer.—p. 362.
Pulmonary Tuberculosis and Pregnancy. A. L. Jacobs.—p. 368.
Cause of Prolapsus Uteri in Women in Light of Perineal Prolapse in Mice. H. Burrows and P. J. Ewers.—p. 377.

Venous Intravasation Following Intrauterine Injection of Iodized Oil.—Since intrauterine injection of radiopaque oils, such as iodized poppyseed oil, is now a common method of investigation of uterine abnormalities, especially of tubal patency in cases of subfertility, Bloomfield puts on record 6 cases of venous intravasation following this operation. Conditions predisposing to this accident include (1) injection of iodized oil within a period of less than eight days after the termination of menstruation, (2) injection immediately after dilatation of the cervix, (3) injection after curettage, before a proper interval has elapsed to allow of regeneration of the mucosa, (4) injection just prior to the onset of menstruation, when the congested and edematous mucosa readily allows of traumatization, and (5) injection with excessive force. In the first of the reported cases the contraindication listed under point 1 had been disregarded, owing to a misunderstanding. In the second case disregard of contraindication 4 or perhaps also 5 may have been responsible. Three other cases occurred within about two weeks. Since all the aforementioned conditions of safety were fullfilled, it is assumed that a new and rather rough surfaced rubber covering to the oil bearing cannula may have traumatized the cervix and permitted the ingress of iodized oil to the pelvic veins. Although as a rule this complication has few if any consequences, it may have serious and even fatal results.

Lancet, London

2:855-890 (Dec. 14) 1946

Malnutrition in Released Prisoners of War and Internees at Singapore. J. B. Mitchell and J. A. Black.—p. 855.
*Observations on Fibrinolysis: Spontaneous Activity Associated with Surgical Operations, Trauma, etc. R. G. Macfarlane and Rosemary Biggs.—p. 862.
*Amphetamine in Pulmonary Tuberculosis. L. E. Houghton and F. L. Corrigan.—p. 864.
*Fatal Use of Dangerous Universal Donor. A. D. Morgan and G. Lumb.—p. 866.
Thrombosis of Inferior Vena Cava: Technic for Demonstration. J. M. Stowers and M. E. Grossman.—p. 868.

Observations on Fibrinolysis.—Macfarlane and Biggs cite observations which suggest that fibrinolysis occurs in association with a variety of disturbances in which the common factor is obscure. The phenomenon is almost certainly due to the proteolytic digestion of fibrin resulting from activation of plasmin, a component of the enzyme system existing in normal blood. They state that fibrinolysis occurs not only after surgical operations but immediately before them in about 50 per cent of cases. The drugs used for premedication may be responsible for some cases of preoperative fibrinolytic activity. Fear of impending operation appears to cause a further proportion of positive results. Traumatic shock does not seem to be a major factor in determining fibrinolysis. The activation of the proteolytic system of normal blood, almost certainly responsible for the phenomenon of fibrinolysis, may be a part of the "alarm reaction" of Selye.

Amphetamine in Pulmonary Tuberculosis.—Houghton and Corrigan say that, contrary to popular belief, euphoria or spes phthisica is not often encountered during the active phases of pulmonary tuberculosis. The prevailing mood is commonly one of depression and overanxiety. They resorted to medication with amphetamine sulfate (benzedrine) and say that the drug appears to have value, particularly during the difficult phases of thoracic surgery and for the restoration of confidence in the depressed or overanxious patient.

Fatal Use of Dangerous Universal Donor.—A patient with group A blood died after transfusion with group O blood which contained exceptionally high alpha agglutinins. Agglutination of the recipient's corpuscles was followed by hemoglobinuria, uremia and death. Such incompatibility is not revealed by the standard cross matching tests (donor's cell against recipient's serum) and was brought to light only by subsequent titering of the donor's serum. Morgan and Lumb present the clinical, postmortem, histologic and serologic aspects of this case.

Medical Journal of Australia, Sydney

2:721-756 (Nov. 23) 1946

Medical Education in Psychiatry in Australia. W. S. Dawson.—p. 721.
Psychologic Medicine and the Community. J. Bostock.—p. 730.
Bacterial Endocarditis. J. H. Halliday.—p. 731.
Bacterial Endocarditis. Jean Armytage.—p. 736.
*Effect of Cerebrospinal Fluid on Interaction Between Rh Agglutinins and Agglutinogens. Rachel Jakobowicz and Lucy M. Bryce.—p. 740.

Interaction of Cerebrospinal Fluid and Rh Agglutinins.—Jakobowicz and Bryce point out that specimens of human serum containing strong anti-Rh agglutinins did not agglutinate group O Rh$_0$ cells when chemically normal cerebrospinal fluid

was used (instead of saline solution) as the diluent for the serum dilutions and the red cell suspensions. The inhibition occurred irrespective of whether the cerebrospinal fluid was obtained from Rh-positive or Rh-negative persons. The inhibition of Rh agglutination by cerebrospinal fluid can be overcome by the addition of human serum or human albumin. Artificially prepared fluids containing the main known chemical components of cerebrospinal fluid do not mask Rh agglutination, nor does the chemically similar allantoic fluid of the chick embryo, but cerebrospinal fluid from 1 rhesus monkey and 1 rabbit had a similar effect on human Rh agglutination, as did 15 samples of human cerebrospinal fluid. The inhibiting effect of the cerebrospinal fluid may be related to the blocking phenomenon.

Practitioner, London

157:413-492 (Dec.) 1946

Diabetes Mellitus 1921-1946. E. P. Joslin.—p. 413.
Treatment of Diabetes Mellitus. W. Oakley.—p. 420.
Diabetic Coma. G. Graham.—p. 426.
Laboratory Diagnosis of Diabetes Mellitus. A. Lyall.—p. 430.
Diabetes from Patient's Point of View. By a Diabetic Doctor.—p. 440.
Fibrositis. W. Tegner.—p. 446.
*Some Aspects of Wrist Injuries in Elderly Patients. D. L. Griffiths. —p. 455.
Treatment of Carcinomatous Ulcers. D. C. L. Fitzwilliams.—p. 462.
Prophylactic Use of Sulfonamides in Infective Diseases. J. Boycott. —p. 466.

Aspects of Wrist Injuries in Elderly Patients.—Griffiths says that it is still inadequately realized that, apart from quite trivial injuries, the most frequent result of injury in the region of the wrist is a fracture. The majority of these fractures are undisplaced, or insufficiently displaced to produce visible deformity. They are therefore easily overlooked, and the possibly disastrous effects of their neglect will continue until every practitioner is aware that a genuine "sprained wrist" is a rare occurrence. The facile diagnosis of "sprain" has meant failure to recognize many fractured carpal scaphoids in young adults, and in older people the so-called sprain is all too often an impacted fracture of the lower end of the radius. If a wrist injury is severe enough to make the patient seek medical advice, it is severe enough to require an x-ray examination and, to be adequate, the films must include anteroposterior, lateral and oblique views. The author discusses Colles's fracture, fractures of the radial and ulnar styloid process and carpal injuries in elderly patients.

Proceedings of Royal Society of Medicine, London

40:1-34 (Nov.) 1946

Sudden Shifts of Body Fluids. G. R. Cameron.—p. 1.
Physiotherapy in Accident Service. M. Page.—p. 15.
Injuries of Cervical Vertebrae. V. H. Ellis.—p. 19.
Protein Metabolism in Relation to Disease. H. P. Himsworth.—p. 27.

Semaine des Hôpitaux de Paris

22:1933-1972 (Nov. 14) 1946

Incidence, Severity and Causes of Acute Poisoning Produced by Illuminating Gas in Region of Paris During Period 1939 to 1946. L. Binet, M. Conte and H. Cabau.—p. 1933.
Study of 136 Cases of Acute Carbon Monoxide Poisoning. L. Binet and M. Conte.—p. 1938.
*Lesions of Central Nervous System Produced by Carbon Monoxide Poisoning. J. Lhermitte and De Ajuriaguerra.—p. 1945.
Carbon Monoxide Poisoning in Child 3 Years of Age with Diffuse Neurologic Symptoms, Progressive Improvement and Partial Blindness. G. Heuyer, M. Conte and A. Rouault de la Vigne.—p. 1948.
Mental Disturbance Due to Carbon Monoxide Poisoning, with Reference to 50 Observations. J. de Ajuriaguerra and A. Rouault de la Vigne. —p. 1950.

Lesions of Nervous System in Carbon Monoxide Poisoning.—According to Lhermitte and Ajuriaguerra the changes in the brain in carbon monoxide poisoning differ widely, depending on the time elapsed between the exposure and necropsy. Hemorrhages, necrobiosis, necrosis and edema characterize the anatomic picture in cases in which death occurred rapidly. These changes may involve primarily the lenticular nuclei but also the subcortical white matter, the hippocampus, the substantia nigra and the cerebellum. Changes in the vascular network with infiltration of the walls by neutral lipids and by a peculiar substance containing ferric salts, calcium and lipids may be observed in cases in which the poisoning continues for a prolonged period or in which death is delayed. A diffuse demyelinization of the entire white matter of the brain similar to Schilder's diffuse cerebral sclerosis may be observed in cases in which death occurs after a long period of remission. It is suggested that in carbon monoxide poisoning a toxic factor in addition to the anoxic factor affects the neuroglia and the vascular network, with specific involvement of the basilar region and the white fibers of the centrum ovale.

Prensa Médica Argentina, Buenos Aires

33:1419-1460 (July 12) 1946. **Partial Index**

*Primary Cancer of Duodenum: Seven Cases. M. R. Castex, C. B. Udaondo and V. D'Alotto.—p. 1419.
Cardiopathies and Rheumatic Fever: Statistics of 550 Cases in Children. M. Sloer, L. Velles Aguirre and M. Berezovsky.—p. 1432.

Primary Cancer of Duodenum.—Castex and his collaborators report 7 instances of primary cancer of the duodenum in persons between the ages of 38 and 60. The tumor was located in the periampullar segment in 5 cases. Adenocarcinoma was the most frequent type of tumor observed. The treatment is surgical. Early diagnosis and an early operation are of importance in the prognosis. The type of operation depends on the seat and extension of the tumor.

Acta Medica Scandinavica, Stockholm

125:505-606 (Sept. 30) 1946

Blood Phosphorus Distribution in Certain Internal Diseases. O. Helve. —p. 505.
Investigations of Concentration of Epinephrine in Blood: III. Concentration of Epinephrine in Blood under Certain Pathologic Conditions, Especially Hypertension. M. Kobro.—p. 523.
Fractional Serum Protein Analysis by Means of Hypobromite Titration. J. E. Thygesen and E. Møller-Christensen.—p. 538.
*Case of Pancreatic Lithiasis Caused by Actinomycete, with Survey of 58 Cases of Pancreatic Stones. J. B. Dalgaard.—p. 557.
Musculoarticular Pains in Light of Figures Pertaining to Oxalic and Uric Acid in Blood. J. W. Grott, in collaboration with F. Kowalski and S. Windyga.—p. 576.
Urobilinogen Tolerance Test as Functional Liver Test. T. K. With. —p. 588.

Pancreatic Lithiasis.—Dalgaard reports 1 case of pancreatic lithiasis in a woman aged 76. Necropsy revealed a highly atrophic and lipomatous pancreas, particularly in the head. The pancreatic duct was dilated and contained several pea-sized stones. A gram-positive mycelium with spurs, obviously an actinomycete, was demonstrated in the stones on microscopic examination. Gram-positive cocci and a few coarse gram-positive bacilli were observed. The mycetes in combination with these bacteria are to be considered as the cause of the lithiasis. Fifty-eight cases (0.43 per cent) of pancreatic lithiasis were observed in a study of 13,350 necropsies which were performed at a hospital in Stockholm during the period 1926 to 1943. The incidence was considerably higher (1.56 per cent) during the period 1940 to 1943, when special attention was paid to the pathology of the pancreas.

Nordisk Medicin, Gothenburg

31:2123-2186 (Sept. 20) 1946

So-Called Cardiospasm and Cancer in Cardiac Tract. A. Gjertz. —p. 2123.
Calmette Vaccination in Sweden. J. Lundquist.—p. 2126.

Hospitalstidende

*Frequency of Rheumatic Fever: Analysis of 225 Cases. F. Harving. —p. 2127.
Roentgen Diagnosis of Extrauterine Pregnancy. B. Nielsen.—p. 2131.

Hygiea

Is Benign Lymphogranulomatosis Fungous Disease? E. Törnell. —p. 2149.

Frequency of Rheumatic Fever.—Harving states that the increased frequency of grave and moderately grave cases of rheumatic fever observed in the Odense District and City Hospital during the last three years is reflected in a general increase in the Danish population. The 225 cases were evenly apportioned between men and women. Heart disease was diagnosed in 109 (48 per cent) of the cases; men were more often and more gravely affected than women. On the whole the increased frequency does not seem attributable to conditions due to the war. Increased cyclonal character of the climate is suggested as contributing to the rise in frequency of this disease.

Book Notices

Diabetic Care in Pictures: Simplified Statements with Illustrations Prepared for the Use of the Patient. By Helen Rosenthal, B.S., Associate Dietitian in the Food Clinic, The Boston Dispensary, Boston, Frances Stern, Chief of the Food Clinic, The Boston Dispensary, and Joseph Rosenthal, M.D., Chief of Diabetic Clinic, Assistant Medical Director, Medical Supervisor of the Domiciliary Medical Service, The Boston Dispensary. Boards. Price, $2. Pp. 150, with 137 illustrations. J. B. Lippincott Company, 227-231 S. 6th St., Philadelphia 5; Aldine House, 10-13 Bedford St., London, W. C. 2; 2083 Guy St., Montreal, 1946.

This little volume, designed for diabetic patients, is profusely illustrated and presents an appealing approach to the problem of diabetes and its management. The text is short and to the point, thus not confusing the average patient. It presents all that a person with diabetes needs to know. The illustrations are good. A diabetic patient who sees these is encouraged from the start in the knowledge of how much he really can eat. Such an encouragement presents diabetes to the patient as a simple dietary problem. Pictures with a light text tell more than just text alone. The illustrations "Carbohydrate Exchange," "Protein Exchange" and "Fat Exchange" are excellent as far as they go, but much teaching will be needed to show an average diabetic patient how to use them for the simple reason that they present just one item, namely either the carbohydrate, the protein or the fat content alone. They do not tell the patient what else (carbohydrate, protein, fat, calories) that particular portion contains. As exchanges they are excellent but since they do not present the other food constituents, the patient will have to spend much time in hunting up the rest of the information which is essential. A complete analysis of carbohydrate, protein, fat and calories at the bottom of each square would have simplified this point. The illustrations on the use of the syringe are good and should be easy to grasp. However, here again we run into an anachronism. Why burden a patient with antiquated procedures of a tray set up for an insulin outfit when such simple and practical adjuncts as the B & D insulin outfit is available? This covers only one tenth of the space as does the tray, eliminates boiling the syringe, saves time. Progress has made the "horse and buggy" obsolete and we should keep up with it. The same applies to the urine tests, another tray with paraphernalia, the use of the spoon, the messiness of the whole procedure, when all that is needed is a small bottle of tablets and a small test tube such as the "Clinitest," with no boiling, no messing around and a prompt reaction. We must learn to conserve the patient's time as well as our own. On these two points one certainly could improve much. The color plates for the sugar, diacetic acid and acetone and the various kinds of insulin are good. Also the illustrations for the care of the feet. All in all it is a spendid little book, a good addition to the lay literature on diabetes.

Operative Gynecology. By Richard W. Te Linde, M.D., Professor of Gynecology, Johns Hopkins University, Baltimore. Fabrikoid. Price, $18 Pp. 751, with 324 illustrations. J. B. Lippincott Company, 227 S. Sixth St. Philadelphia 5, 1946.

"The author has attempted to fill this void [field of gynecologic surgery] with the present volume." He continues with the idea of bringing operative gynecology up to date in a single volume and then adds "this volume should be of value to those who, by self instruction, must acquire a certain degree of operative skill." He invites general surgeons to use the book.

The book contains many drawings. Like all first editions certain errors are present. For instance, there is one chapter entitled "Retrodisplacement of the Uterus" and yet in the index there is no reference to retrodisplacement or retroversion of the uterus. Prolapse is treated in a separate chapter. There is a limited number of colored reproductions. No doubt the author is most disappointed in their poor reproduction.

A good amount of space is set aside for proper diagnosis, preoperative care, armamentarium and anesthesia. The preoperative care and complications, armamentarium and anesthesia fill thirty-seven pages, while postoperative care and complications are disposed of in thirty-two pages. He uses only a page and a half for the treatment of postoperative peritonitis. By contrast, under the heading of "Gonorrhea and Its Complications" two full pages are given for the description of laboratory methods, three pages for treatment of the lower genital tract gonococcic infection, and then general discussion before approaching the subject of surgery for residual gonococcic disease. He described many operations for residual damage to the tubes and ovaries.

Discussion of the indications for surgery and the type of operation which one should perform is not direct or positive. The discussion of estrogen therapy for the menopause is limited almost exclusively to pellet implantation without comparison or adequate reference to other routes and types of therapy. As one reads the book the impression develops that it is more of a gynecologic textbook with major emphasis on surgery rather than a gynecologic surgical volume. It gives the impression in some portions that the author is removed from obstetric problems and hence the intimate relationship of obstetrics and gynecology. He emphasizes the virtue of the use of the finger in the completion of abortion. Yet most gynecologists condemn this procedure.

The medical profession should expect a superior gynecologic volume because of the author's stature in the field of gynecology, his institutional connection and appointment, his scientific and clinical ability and his rich clinical experience. Probably the shortcomings have been the product of the stress and strain of the past few years. The next edition, and there is reason to believe there should be one in the near future, will undoubtedly come up to the level which we expect of Te Linde's efforts.

The many illustrations with the several operative steps are valuable and easily followed, so much so that they serve their purpose very well. Obviously the better portions (there are several) deserve full credit and strong recommendation. In spite of these criticisms this book on operative gynecology represents a major contribution in this special field. Special comments should be offered about the illustrations, for they were done by well known medical artists. The publishers (except for colored reproductions) have maintained their usual standard. Te Linde has presented his views concisely, easily and clearly. This book will undoubtedly be used generally and referred to frequently by a large number of the profession.

Jewish Luminaries in Medical History. By Harry Friedenwald, M.D. And a Catalogue of Works Bearing on the Subject of the Jews and Medicine from the Private Library of Harry Friedenwald. Cloth. Price, $3. Pp. 199, with 3 illustrations. Johns Hopkins Press, Homewood, Baltimore 18, 1946.

This deals with the most important contributions of Jewish medical men to medical science. The first part of the book contains a delightful essay of twenty-four pages on Jewish luminaries in medicine. The rest of the volume is devoted to a catalogue of books, pamphlets and manuscripts written by Jewish physicians or about Jewish physicians through the ages. The catalogue is limited to the collection in the private library of the author but it is quite complete, as Dr. Friedenwald happens to possess the largest collection of works on Jews in medicine. Although the catalogue of Steinschneider published at the end of the nineteenth century contains a greater number of references, Dr. Friedenwald's volume has the advantage of bringing the material up to date. Furthermore, the interesting comments and explanatory notes that accompany many of the listings make Dr. Friedenwald's catalogue much more than a mere listing of books and manuscripts. This little volume adds a great deal of information to our knowledge of the Jewish contributions to the progress of medical science. It can be read with interest and profit not only by the student of Jewish medical history but by any one interested in general medical history. Dr. Friedenwald has made a life study of the subject, and his work is authoritative.

Ocular Prosthesis. By J. H. Prince, F.B.O.A., F.S.M.C., F.I.O. Cloth. Price, $4. Pp. 134, with 76 illustrations. William Wood and Company, Mt. Royal & Guilford Aves., Baltimore 2, 1946.

The author, a sight testing optician in Great Britain, corresponding to an optometrist in this country, presents an interesting little book on the artificial eye. When he sticks to the subject of making and fitting artificial eyes his words are perhaps authoritative. Unfortunately, like so many other non-medical practitioners, when he enters the realms of anatomy, physiology, diagnosis and treatment many of his statements are misleading. He seems unable to resist mentioning, lightly to be sure, clinical syndromes, using as one of his authorities Haskel

J. Kritzer, whose system of "Iridiagnosis" is without scientific standing. The treatment Prince advocates for gonorrheal conjunctivitis, who states that "it can be minimized by the use of an undine and one in five thousand solution of perchloride" is criminal in the light of present knowledge. He names papillitis as one of the diseases calling for enucleation, and his statement that "scars [of the conjunctiva] are healed with silver nitrate pencil" is highly improper. These and other inaccurate remarks will lead astray readers whose medical knowledge is as garbled as his own. Ophthalmologists will have little use for this book.

The Second Forty Years. By Edward J. Stieglitz, M.S., M.D., F.A.C.P. Foreword by Anton J. Carlson, A.M., Ph.D., M.D. Cloth. Price, $2.95. Pp. 317, with illustrations by Ann Stieglitz. J. B. Lippincott Company, 227 S. Sixth St., Philadelphia 5, 1946.

The customary attitude toward advanced age is one of fear disguised as disregard. At best, old age is looked on as a necessary evil, an undesirable accessory of a state which all of us hope to reach. What do we do about it? The individual's effort may culminate in the provision of an old age annuity. The attitude of the individual is reflected in the attitude of the community and of the country as a whole: federal funds to the amount of more than $400,000,000 are annually allocated to old age assistance, but not one cent of this is used to study the disabilities which prevent these elderly dependents from earning their own way. Dr. Stieglitz, editor of *Geriatric Medicine* and a recognized student of gerontology, has undertaken to present to the lay reader what is known scientifically about old age. The first four chapters deal with the general problem of senescence. Heart, hypertension, nutrition, sex and cancer are discussed in the following five chapters. Then follow chapters on the mental and emotional processes of the aging person, on the importance of proper utilization of leisure, on social significance of aging, and a concluding chapter on constructive medicine. The book is intended for the intelligent reader. It is refreshingly different from most books which attempt to popularize medicine by talking down or by sensationalism. Even the physician will find in it a well written introduction of a new branch of medical practice and research.

Líquido céfalo-raquídeo L. C. R. Por el Dr. Ernesto Daniel Andía, jefe del servicio de clínica neurológica del Hospital municipal "P. Fiorito" de Avellaneda. Paper. Pp. 246, with 108 illustrations. Buenos Aires: Librería y editorial "El Ateneo," 1946.

Every phase of cerebrospinal fluid in its application to clinical medicine is covered. In addition there is a chapter on the origin, circulation and absorption of the fluid. This chapter is profusely illustrated by x-rays of the ventricles and subarachnoid spaces. Most of the illustrations are visualizations through iodine preparations, a method now rarely employed in this country because iodine does not absorb well from the subarachnoid spaces. The author also makes use of encephalograms among his illustrations. The methods of examination presented are those in popular use except for the urea determination. The usefulness of the quantitative determination of this substance is questionable, as is the value of bilirubin, to which the author attaches some importance. Of special interest are the chapters on cerebrospinal fluid in kidney disturbances, in jaundice and in multiple sclerosis and the discussion of stasis of the cerebrospinal fluid. The text is followed by a bibliography of studies by the author and his associates. One feels that additional reference to the work of other investigators would have made the book much more valuable. The volume is a useful compendium for the clinical examination and interpretation of the cerebrospinal fluid.

Monocular Vision Training. By Mildred Smith Evans. Cloth. Price, $3. Pp. 93, with illustrations. Williams & Wilkins Company, Mt. Royal & Guilford Aves., Baltimore 2, 1946.

The unusually large print in this volume is certainly conducive to stimulation of the child with a poor eye. In addition the drawings with the tissue paper for copying are an excellent method to induce the child to take interest in this one-eyed book. There are two suggestions that could be made to make it of more value: some of the drawings should have been in color; then too the price is somewhat high. However, the need of such a book will make available for the many one-eyed children a worth while addition to the armamentarium for orthoptic training.

The Principles of Neurological Surgery. By Loyal Davis, M.S., M.D., Ph.D., Professor of Surgery and Chairman of the Division of Surgery, Northwestern University Medical School, Chicago. Third edition. Cloth. Price, $7.50. Pp. 540, with 197 illustrations. Lea & Febiger, 600 S. Washington Square, Philadelphia 6, 1946.

For over a decade this text book has been one of the standard reference works in neurosurgical problems for students and general practitioners. The fact that it is now in its third edition is ample evidence of its proved usefulness. The stated purpose of the author is to "present easily assimilable facts which will aid in the development of a more accurate concept of neurological surgery" in those practitioners who are not expert neurologists or neurologic surgeons. The volume is carefully divided into chapters on neurologic diagnosis, cranial and intracranial injuries and disease, spinal cord injuries and disease, peripheral nerve injuries, pain, the autonomic nervous system, epilepsy and the lesions more difficult to classify, such as cervical rib and syringomyelia. Of special value and reflecting the progressive outlook of the author are the discussions on the newer concepts in the treatment of the paraplegic and the use of chemotherapy in the infections. Of interest to the general practitioner is an accurate but conservative evaluation of the surgical treatment in essential hypertension. This book can be freely recommended to all those desiring an accurate, interestingly written and well illustrated statement of the principles of neurosurgery.

Conduction Anesthesia: Clinical Studies of George P. Pitkin, M.D., F.A.C.S., F.I.C.A. Edited by James L. Southworth, M.D., and Robert A. Hingson, M.D. With chapters prepared by Winifred Pitkin, M.D., M.R.C.S., and others. Fabrikoid. Price, $18. Pp. 981, with 606 illustrations prepared for the clinical studies under the direction of Dr. George P. Pitkin. J. B. Lippincott Company, 227 S. Sixth St., Philadelphia 5, 1946.

This book was begun by Dr. George P. Pitkin. After his death it was completed with chapters prepared by Drs. Winifred Pitkin, A. R. McIntyre, Frederick M. Allen, Waldo B. Edwards, Louis A. Palmer, William T. Lemmon, Lyman W. Crossman and Henry G. Hager Jr. It was edited by Drs. James L. Southworth and Robert A. Hingson. Following a historical introduction there are chapters on anatomy of the cranial nerves, anatomy of the spinal nerves, the autonomic nervous system, pharmacology and toxicology of cocaine and synthetic local anesthetics, shock and principles of conduction anesthesia. A variety of chapters deal with anesthesia in anatomic regions such as the head, blocking the trigeminal nerve, cervical block and other subjects. There is a chapter on spinal anesthesia by the late Louis A. Palmer and one on continuous spinal anesthesia by William T. Lemmon. Refrigeration anesthesia is discussed, as is also therapeutic nerve block. An attempt has been made to present many methods of doing each of the blocks. This book is an attempt to deal in great detail with one phase of anesthesiology. It is to be hoped that the book will be useful, although possibly it will be somewhat confusing to those who are not expert enough to do without it.

Spanish-English Medical Dictionary. Compiled by Maurice McElligott, F. R. C. S., D. P. H. Fabrikoid. Price, $3; 12s. 6d. Pp. 250. Paul B. Hoeber, Inc. (Medical Book Department of Harper & Brothers), 49 E. 33d St., New York 16; H. K. Lewis & Co., Ltd., 136 Gower St., London, W. C. 1, 1946.

This dictionary is now given to the Spanish speaking medical world with confidence but with full knowledge of its limitations. The compiler asks all who consult it to apprise him of any lacunae which they may observe for correction in future editions. Acknowledgment for help is presented through the book to Dr. Josep Trueta of Barcelona and Dr. J. Perera y Prats of Madrid and to Mrs. Isobel W. Brocklehurst, M.R.C.V.S., of the Department of Veterinary Pathology of the University of Liverpool for the list of veterinary terms which appears at the end of the book. More than 14,000 medical terms are translated into English. In these days it is almost imperative for Spanish speaking physicians and scientists to be familiar with English medical terms. On this account the dictionary will be a great help, especially in Spanish medical libraries. The author gives credit to Dr. Joaquin Pi for Pi's Spanish Medical Dictionary, but he does not mention Moll's Spanish-English Medical Dictionary (Dicionario Médico Español Inglés), which was published by the American Medical Association. This omission probably can be excused since copies of Moll's dictionary have

not been available for many years. Some of the medical terms are slightly misspelled, as for instance the Spanish word "amoratado-a," which is erroneously written "amoratodo" and the English words "chemiotaxis" and chemotherapy," which are erroneously written "chimiotaxis" and chimiotherapy," although this failing could be corrected in future editions.

Medical Research: A Symposium. Edited by Austin Smith, M.D. Cloth. Price, $5. Pp. 169, with 17 illustrations. J. B. Lippincott Co., 227 S. Sixth St., Philadelphia 5, 1946.

The book opens with a classically beautiful essay by Torald Sollmann, in the style of Claude Bernard, on the fundamentals of medical research. After discussing training, materials, supplies and the like he comes to motives and objectives. Research is seen either as pioneering and adventurous, with "plenty of fun and disappointments," in which a ten-strike is the goal; or, as developmental, an engineering problem, comprising long and carefully planned work. The latter type lacks some of the romance of the former but is more certain to return a yield, even though it be a gleaner's. The systematic and meticulous are most happy with this type, the dreamers of heights with the first. Fortunately, however, men are not simply made, and even "classicists have some of the gipsy in them." Cooperative research, which is at times "a method of production rather than of discovery," is of little use to the pioneer but may be utilized by the developer who can better outline the mechanics of his work. Finally, research is truth. It is also a game of skill and luck, and he wins "who fights for the prize of prizes, the devotion to an exacting ideal."

In the next essay Austin Smith discusses the more practical aspects of research, its expense and financing and the necessity of providing the individual young investigator with freedom for thought, bonuses for ideas and family security. Again, at the present time some problems have answers beyond our horizons; for instance, what will be the ultimate effect of penicillin and the sulfonamides, and of DDT, on the complexity of human environment? Research, even though it is costly and often fruitless, must be pressed to solve such ever new problems in health.

The late Herbert Calvery of the Food and Drug Administration then discusses the laboratory, its building, equipment and supplies, and then its organization. S. DeWitt Clough, chairman of the board of a large pharmaceutical house, describes the manufacture of drugs and particularly the part of industry in the development of new drugs. Also he describes the requirements for safety of the Federal Food and Drug Administration before a drug can be marketed, and the great desirability of cooperation with the Council on Pharmacy and Chemistry of the American Medical Association. If the remedy is "accepted" by this body, the individual practicing physician is impressed that it will be effective as well as safe, because this committee of experts represents his best source of unbiased therapeutic information.

Eldon M. Boyd reviews university research, and especially that principal hazard, administrative responsibilities, when, at the age of 40, the researcher becomes a department head. The solution is, in many cases, a losing one for research. The sometimes forgotten but ever present opportunities for "clinical research with a notebook" are described by Walter Alvarez in his usual interesting and tantalizingly thoughtful case stories. Morris Fishbein concludes the general discussion with a consideration of the publicizing of medical research and the hazards and abuses of public information, yet its necessity.

The last chapter, on photography, is like the laboratory exercises appended to a lecture course. In it is shown what research in one particular field can produce. The most breath-taking picture in the chapter is figure 16, which is the picture of a molecule of hexamethyl benzene, magnified 15 million times by x-ray diffraction, to show the carbon atoms individually in their true spatial arrangement. It is like the boy's first look through a microscope at an utterly new realm.

The book as a whole is delightful reading in itself for researchers. It is additionally valuable because it cannot fail to stimulate other readers to participate in, or to support, ventures into newer knowledge.

Victory Over Pain: A History of Anesthesia. By Victor Robinson, M.D., Cloth. Price, $3.50. Pp. 338, with 47 illustrations. Henry Schuman, 20 East 70th St., New York 21, 1946.

This is a book which should prove both readable and informative to physicians and laymen alike. It is the last of four histories published during the two years preceding the ether centennial. Keys' History of Surgical Anesthesia and Raper's Man Against Pain were published in 1945. Ellis's Ancient Anodynes preceded Victor Robinson's Victory over Pain in 1946. All four are distinct contributions to the subject. However, one cannot avoid the feeling that no comprehensive and accurate history of anesthesia has yet been written in a manner completely satisfying to the physician whose life work is the relief of pain. Doubtless the lack of general use of the word anesthesia previous to 1846 and the frequent publication under other titles of matters dealing with anesthesia since then have caused many of the inaccuracies, omissions and conflicts in opinion found in historical writing.

The termination of the contributions of Victor Robinson to medical literature will be keenly felt among American physicians. His familiarity with the history of medicine obviously stood him in good stead in writing this, his last book. His pleasing style of expression, together with his wide acquaintance with medical history, has produced a book not seriously lacking in accuracy, comprehensiveness or readability. No attempt was made at documentation if one excepts the brief bibliography appended. It is therefore in no sense a reference book for the bibliophile. An adequate index, however, is of aid to the casual student who is not interested in sources. Anecdotes and brief character sketches, together with many illustrations reproducing old prints, portraits and photographs, add interest. This is not a book for scholarly study by the physician in his more serious moods; rather is it a reasonably accurate and fairly comprehensive story, well told, of the world's struggle to date toward the relief of pain.

Renal Diseases. By E. T. Bell, M.D., Professor of Pathology in the University of Minnesota, Minneapolis. Cloth. Price, $7. Pp. 434, with 119 illustrations. Lea & Febiger, 600 S. Washington Sq., Philadelphia 6, 1946.

This monograph is a worthy product of an expert on renal disease. It is in part a compilation of studies made by the author during the past twenty-five years and includes a large amount of previously unpublished data. The text is clearly written and is illustrated by a superb choice of photomicrographs. Only the four color plates could be improved on in their reproduction. The development of the subject follows Bell's classification of renal disease. The text is introduced by chapters on normal renal histology and normal and abnormal renal function. In addition to the discussion of the structural changes in the kidneys, the pathologic physiology and the clinical manifestations of each disease are well treated. Although only the rationale of treatment is presented, the author indicates his choice for further study of special papers on therapy. The field of renal diseases is thoroughly covered, including renal function and structural changes associated with hypertension, the toxemias of pregnancy and the renal lesions of diabetes. This monograph undoubtedly will help to bring about closer cooperation between the pathologist and the clinician and will be of value to all interested in the problems of renal disease.

La cultura in vitro del midollo osseo: Problemi di fisiopatologia ematologica studiati con la tecnica della cultura dei tessuti. Di Aminta Fieschi e Giovanni Astaldi. Prefazione di Cesare Frugoni. Paper. Price 1,000 lire. Pp. 309, with 122 illustrations. Tipografia del Libro di S. Bianchi, Pavia, 1946.

This excellent book presents the results of the study of human marrow (normal and in pernicious anemia, chronic and acute leukemia, erythroblastosis and Cooley's disease) by the tissue culture method. Plasma cells were found to originate from plasma cell blasts and megaloblasts from histioblasts, with replacement, under liver therapy, by transitional and later normoblastic forms. Cells from acute leukemia have a long survival time in contrast to those of chronic leukemia. The book is well printed, with beautiful illustrations, some in color. The conservative attitude toward controversial subjects makes it a valuable authority on the subject.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ESTIMATION OF SERUM ANTIBODIES AGAINST INFLUENZA VIRUS

To the Editor:—Where can one obtain antiserum for influenza A and B for measuring antibodies in the serum of patients? How stable is this material and how long will it remain potent in an ordinary refrigerator?

Robert B. Rodman, M.D., Wilmington, N. C.

ANSWER.—Antibodies against influenza A or influenza B viruses in serum of patients have been estimated by a number of different technics, including tests for virus neutralization, for complement fixation and for the capacity to inhibit the agglutination of chicken erythrocytes in vitro. For each of these procedures a suspension of virus or a preparation of viral antigen is required.

The simplest and most convenient technic available at present for measuring antibodies against influenza viruses are based on the capacity of influenza viruses to cause the agglutination of erythrocytes in vitro and the fact that the hemagglutination can be specifically and quantitatively inhibited by appropriate antibody (Hirst, G. K.: *J. Exper. Med.* **76**:195 [Aug.] 1945). Virus is grown in the chorioallantoic fluid of developing chick embryos and, for use in tests of this kind, may be kept in an ordinary refrigerator at approximately 4 C. for many months.

As far as we have been able to determine, preparations of influenza viruses suitable for use in tests to measure antibody in serum are not yet available from commercial sources. Strains of virus can probably be obtained if requested from laboratories in which the influenza viruses are being propagated and studied.

PLACENTA ACCRETA

To the Editor:—Are there any statistics available as to the recurrence of placenta accreta? The placenta accreta was found in a patient who was delivered by cesarean section. The placenta was removed with the loss of some uterine tissue. What would be the possibility of a recurrence of this condition in a subsequent pregnancy? Would this condition occurring in the first pregnancy increase the possibility of spontaneous rupture of the uterus in subsequent pregnancies? M.D., Minnesota.

ANSWER.—Reports of a repetition of placenta accreta in the same patient have not been found. Theoretically if the uterus is not removed for placenta accreta, as it should be in most cases, there can often be a recurrence of the condition. In most cases of partial as well as complete placenta accreta the decidua basalis is either absent entirely or it is present as groups of cells in the compact layer. Hence the fertilized ovum is implanted directly on the myometrium and not on a decidua. This occurrence explains the failure of separation of the placenta after delivery and also the profuse hemorrhage which takes place when an attempt is made to separate the placenta from the uterine muscle manually. If the decidua is absent this may mean that the endometrium was deficient before gestation occurred or that the endometrium failed to be transformed into a satisfactory decidua because of hormonal disturbances. In either event, if the uterus is not removed it is possible for the endometrium to be regenerated sufficiently to permit normal implantation of an ovum followed by a normal pregnancy and labor. In the literature there are reports of 14 women in whom the placenta was permitted to remain intact without any attempt at removal and no operative procedure was followed other than packing or draining. All of these women survived. In fact 2 women treated in this way subsequently gave birth and had no complications in the third stage of labor.

In a case like that cited, if considerable uterine tissue was removed with the placenta there may be a distinct risk of rupture of the uterus in a subsequent pregnancy, not only because of the thinning of the uterus at this point, but also because all the decidua, if there was any, was removed, including the compact layer. In 11 cases of placenta accreta reported in the literature spontaneous rupture of the uterus took place. In 15 cases the diagnosis of placenta accreta was made at cesarean section, the indications for which were placenta previa, fibroids, disproportion and other conditions. (See Kaltreider, D. F.: *Bull. School of Med., Univ. Maryland* **30**:1 [July] 1945.)

SEDATIVES AND POSTOPERATIVE VOMITING

To the Editor:—Not rarely one sees patients who must have opiates for relief postoperatively but who have intractable vomiting from any of them, that I have tried, including morphine, pantopon, dilaudid and codeine. Demerol seems less likely to bring about vomiting but frequently seems to give little pain relief. Is there any means of obviating the vomiting occurring after the administration of these drugs? M.D., Alabama.

ANSWER.—The question may well be raised as to whether or not the drugs in question produce the vomiting or whether the vomiting is due to ileus, acute dilatation of the stomach or some other complication. Certainly in the hands of many surgeons these drugs are only infrequently accused of producing severe vomiting.

However, the opiates as a group are capable of inducing vomiting in occasional persons, even to the point of precluding their further use. Codeine and dilaudid (dihydromorphinone hydrochloride) are presumed to be more easily tolerated than morphine. The concomitant use of atropine or sedatives may also be helpful. Demerol (meperidine hydrochloride) is often a satisfactory alternative and, although not a highly potent analgesic, is ordinarily adequate to control postoperative pain.

NURSING BY SYPHILITIC MOTHER

To the Editor:—Please discuss the use of mother's milk when it is positive for syphilis. Kline and Kolmer serologic tests of the baby are negative. The mother's blood is Kline and Kolmer positive.

E. W. Pillstrom, M.D., Ozark, Ark.

ANSWER.—The inquirer's meaning as to mother's milk which is "positive for syphilis" is not clear. Does this mean that the milk has been demonstrated to contain Treponema pallidum by means of its injection into experimental animals or that a serologic test for syphilis has been done on the milk? Both of these seem highly improbable. Little is known about the infectiousness of milk for animals. Serologic tests on milk have been done experimentally, but their result is not an indication of the infectiousness of the milk.

Whether a normal infant born of a syphilitic mother should be breast fed depends not on the mother's blood test but on the duration of her infection and the character and amount of antisyphilitic treatment she has had prior to the infant's birth. If the mother has been recently infected, i. e. within two years of the birth of the infant, and regardless of the amount of treatment she may have had before delivery, it is probably undesirable for the infant to nurse unless the mother's treatment is continued during the period of lactation. This has to do not with the possible infectiousness of milk, which is unlikely, but instead with the possibility that the mother may develop a relapsing infectious lesion on or about the nipple, through which the infant may develop an extragenital chancre.

If the mother has had syphilis more than two years before the birth of the infant and whether or not she has been previously treated, it is probably entirely safe for the infant to nurse.

This question is discussed in detail on page 499 of Moore, J. E.: The Modern Treatment of Syphilis, ed. 2, third printing, Springfield, Ill., Charles C Thomas.

NIKETHAMIDE FOR HICCUP

To the Editor:—Based on the rationale that powerful stimulation of the respiratory center as by carbon dioxide inhalation terminates an attack of hiccup in most cases, I have tried the intravenous injection of nikethamide in 2 to 5 cc. doses, just enough to produce deep respirations. Most of the patients had cardiovascular disease. The action of the drug was prompt and reliable in stopping the attack. If the hiccup returned after the drug action wore off, the dose was repeated, with the same effect. References have not been found in any standard textbook on the use of nikethamide in this condition. It would be interesting to try this drug on patients who are or have become refractory to the inhalation of carbon dioxide. Felix Schell, M.D., Passaic, N. J.

ANSWER.—The inhalation of 7 to 10 per cent carbon dioxide acts as a powerful stimulant to the respiratory center and probably takes precedence over the reflex stimulation of the diaphragm. However, in most cases the hiccup stops when the patient verges on loss of consciousness and appears to be in part related to the generalized muscular relaxation that follows. Nikethamide is a powerful respiratory stimulant which might also take precedence over the habit reflex diaphragmatic spasm.

Subcutaneous injection of 0.5 cc. of ether also promptly stops hiccup. This results in intense momentary pain. With the use of ether and carbon dioxide the cessation of hiccup is frequently temporary, but repeated use of either procedure usually results in permanent cure. It would be interesting to try other cases with nikethamide and probably also with metrazol.

VICARIOUS MENSTRUATION

To the Editor:—What recent information is there with reference to vicarious menstrual bleeding? A patient for many years has had a Vincent's infection in her mouth, having also a good deal of bleeding from her gums. This infection was treated with apparent success and the bleeding from the gums stopped, except during the normal menstrual period, at which time her gums bled rather profusely. I have given no treatment to date. Can you advise me what I might do? Would I be correct in assuming that pregnancy would discontinue this bleeding?

James Frenkil, M.D., Baltimore.

ANSWER.—There has been no new information concerning vicarious menstruation. The type which this patient has is called "supplementary vicarious menstruation" to distinguish it from true "vicarious menstruation," a condition in which the periodic bleeding occurs from various parts of the body, usually mucous membranes, but not from the uterus. The cause of this condition is unknown. According to many investigators there is during menstruation an increased capillary permeability involving the whole body which may have a bearing on vicarious cyclic bleeding. The periodic bleeding will almost certainly cease during pregnancy. There is some relationship between the mucous membranes, especially of the nose, and the estrogens. However, true vicarious menstruation has been reported in women after the menopause, after hysterectomy and following bilateral oophorectomy; hence the relationship between this type of bleeding and the sex cycle may be questioned.

Unfortunately there is no specific treatment for vicarious menstruation; hence therapy is empirical. The estrogens have helped some patients but have had no effect in others. If bleeding points can be seen they should be cauterized. Vitamins C and K should be administered, although they may not do any good.

SYNCOPE

To the Editor:—A woman aged 59 has had attacks or spells for about two years in which she has dizziness and a sensation of cessation of circulation with numbness embracing the entire body. During this period of syncope the veins in the fingers and hands suddenly swell and become pronounced. After stimulative treatment, rest and massage these veins disappear completely, the body circulation is resumed and the sensation of numbness leaves her. The patient has had two severe attacks in the two year period and numerous mild ones. Her first warning of the oncoming attack is a sensation as if there were running water inside the head with a sort of sizzling noise in the back of the head. The patient had the menopause thirteen years ago. She has had no operation nor serious illness. At the time of the first serious attack her blood pressure was very low. At present the blood pressure is 130/85. The heart is normal. The weight is 170 pounds (77 Kg.), the height 5 feet 7 inches (170 cm.). The patient has varicose veins.

Morris H. Pett, M.D., Gloucester, Mass.

ANSWER.—In order to arrive at a definite diagnosis, additional data are required. If the syncope is transitory in nature and the attacks occur in the standing or sitting position, a reflex syncope is suggested probably caused by a hypersensitive carotid sinus. The diagnosis can be established by artificial reproduction of the spontaneous attacks through stimulation of the carotid sinus (Weiss, Soma; Capps, R. B.; Ferris, E. B., Jr., and Munroe, Donald: Syncope and Convulsions Due to a Hyperactive Carotid Sinus Reflex, *Arch. Int. Med.* **58**:407 [Sept.] 1936). If the attacks occur at the time the patient assumes the erect position, blood pressure determinations may show a postural hypotension. On the other hand, if the attacks occur in any position an epileptic seizure is more likely. It would be useful to know the condition of the pulse in attacks, as various forms of cardiac arrhythmias may be the causative mechanism.

The swelling of the veins is probably the result of vasodilatation, which may involve the veins as well as the rest of the vascular bed.

MATURATION OF SPERMATOZOA

To the Editor:—What is the length of time for development of spermatozoa from the primitive germ cell to mature spermatozoa? M.D., Arizona.

ANSWER.—Little is actually known on this problem. It is probable that different species require different lengths of time for the process. In the newborn rat and hamster, seminiferous tubules are solid and show a lumen and cellular activity about the sixteenth day, with spermatozoa appearing about the thirty-sixth day; this would represent a total period of twenty days from lumen formation to spermatozoa. In mature rats, on the basis of length of a spermatogenetic wave it has been estimated that from the spermatogonium to spermatozoon requires twenty days. Data are not known for man.

Just formed spermatozoa are probably not physiologically mature. The epididymis appears to exert some influence on sperm as they pass through, and apparently some days are required (estimated at six to ten or more days) to gain full physiologic maturity.

POSTTRANSFUSION DEATH IN INFANT

To the Editor:—A boy aged 4 months was hospitalized because of extreme emaciation and dehydration resulting from chronic diarrhea and improper feeding. The birth weight was 6 pounds 9 ounces (2,983 Gm.), the admission weight 7 pounds 6 ounces (3,176 Gm.). On admission he was given 250 cc. of citrated whole Rh positive blood by marrow transfusion. This was followed by clysis of lactate-isotonic solution of three chlorides, milk formula and other fluids by mouth. The patient improved during the next two days. Forty-eight hours after the first transfusion another 250 cc. of blood was given by bone marrow transfusion from the same donor. Immediately after completion of the transfusion the temperature rose to 105 F. and the skin became bluish. About two hours later a firm ecchymotic area developed in the lower abdominal wall and upper part of the left thigh. Puffiness of the subcutaneous tissues developed, particularly about the eyes. There was hemoptysis of bright red blood and passage of a small amount of blood by rectum. The subcutaneous bleeding continued until the entire surface of the body was involved, with the exception of the face. The patient's blood was Rh positive. Postmortem examination showed bleeding into most of the soft tissues of the body. Please discuss the course of events in this case. Under such circumstances how rapidly could Rh antibodies be formed so as to cause a similar succession of events? Is it possible that the patient had an Rh negative blood and that the transfusion of large amounts of Rh positive blood accounted for the laboratory's report of Rh positive blood?

M.D., Arizona.

ANSWER.—Posttransfusion hemorrhages are rare, and those recorded have occurred almost without exception in patients with a hemorrhagic tendency prior to the transfusion. They included retinal hemorrhages and occasional meningeal hemorrhages.

The theoretical blood volume of this infant (weight 7 pounds 6 ounces) was in the vicinity of 300 cc. He was given 250 cc. of blood, or approximately five sixths of his whole blood volume. This is equivalent to giving about 5,000 cc. of whole blood to a person weighing 140 pounds (63.5 Kg.).

It has been recommended not to give infants more than 10 cc. of blood per pound of body weight. According to this the infant received at least three and one half times the maximum permissible amount of blood.

The findings are best explained by a summation of three factors: (1) the possible hemorrhagic tendency, (2) the damaged myocardium and (3) the tremendous overloading of the circulation (approximately twice the total normal blood volume was added within forty-eight hours over and above the child's own blood). All three contributed to the heart and circulatory failure and hemorrhages.

The Rh factor had nothing to do with the reaction. Even if the infant was Rh negative the antibodies could not develop forty-eight hours after the first transfusion in an infant of this age. Transfusion reactions due to the Rh factor are of hemolytic nature with a clearcut clinical picture, and necropsy findings which are not described in this case.

If this child was Rh negative the finding of Rh positive blood could have been explained by the transfusion of large amounts of Rh positive blood, though the method of differential agglutination could show the presence of some Rh negative blood remaining unclumped.

CHEMICAL DÉBRIDEMENT OF BURNS

To the Editor:—What are the advantages of using saline-glycerin-acetic acid mixture of pH 3.8 in the treatment of burns? How is it used? Have any later methods of treatment of burns appeared? M.D., New York.

ANSWER.—The use of saline-glycerin-acetic acid mixture for burns is a method of chemical débridement. The need for such measures is predicated on the common observation that the frequently necessary skin grafting in third degree burns is often needlessly delayed for several weeks by slow separation of the slough.

Chemical débridement attempts to hasten slough dissolution and to permit early skin grafting. Acetic acid was used for this purpose by Dorrance and Bransfield. Connor and Harvey used pyruvic acid at a p_H of 1.9 in 8 per cent corn starch both clinically and experimentally and found that the slough of experimental burns could be removed in forty-eight to seventy-two hours and could be followed with early skin grafting. Certain of the burns treated after the Hartford circus disaster received this treatment. Lam and Puppendahl did experiments that indicated little value in the method. The latter authors suggested that the favorable effect on sloughing obtained with pyruvic acid paste is due more to maceration than to the acid p_H. Chemical débridement is, however, still used by certain specialists in the field. Generally, however, surgical débridement is used in the form of excision of the slough at or shortly before the time of grafting.

Chemical débridement can also be applied in the form of an enzymatic digest as used by Cooper, Hodge and Beard.

If the saline-glycerin-acetic acid mixture is used, it should be applied to the burn as a compress, either immediately or at the first change of dressing.

The most widely accepted form of burn treatment at the present time is the compression method. This involves rapid covering of the burn under aseptic precautions, holding of the dressing in place with a voluminous compression bandage and keeping the cover intact without change for at least ten days after the injury (Allen and Koch). The inner layer of this dressing is of fine mesh gauze and may be applied either dry, moistened with saline solution or petrolatum or, more rarely, impregnated with other medicaments.

References:

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Lam, C. R., and Puppendahl, Magda: The Pyruvic Acid Method of Burn Slough Removal: An Experimental Investigation, *Ann. Surg.* **121**: 866 (June) 1945.

INTRAVENOUS BARBITURATES FOR ORAL SURGERY

To the Editor:—**Please discuss the use of pentothal sodium in oral surgery, particularly dental surgery.** **G. A. Geshgarian, M.D., Waukegan, Ill.**

ANSWER.—The intravenous barbiturates have been used extensively to provide anesthesia for operations in the mouth, and many workers have produced satisfactory results in this way. There are certain reasons, however, for which intravenous anesthesia for these purposes is open to criticism. Complete patency of the respiratory passages is of paramount importance because of the depression of respiration to which the barbiturates give rise. Because of the nature of the operation the "airway" is prone to become obstructed. Laryngospasm may easily occur unless a large dose of the drug is given before the intensely "painful" stimulus of dental extraction. Operations in the mouth are often performed in the sitting position, and some feel that the relative cerebral ischemia in this position predisposes to circulatory collapse. Reference is made to Intravenous Anesthesia by R. Charles Adams (New York and London, Paul B. Hoeber, Inc., 1944, pp. 517-519).

MIGRAINE ASSOCIATED WITH MENSTRUATION

To the Editor:—**A woman aged 30 has suffered severe premenstrual migraine headache, lasting three days and ending with the onset of menstruation, during the past two years, since marriage. A year ago she had her first and only pregnancy, ectopic, requiring resection of a tube and ovary. This did not affect the migraine, which is relieved only by repeated injections of sodium nicotinate intravenously during the attack. Last month she received 10,000 units of estrogenic substance twice weekly for the entire menstrual cycle, and the migraine was worse than ever. Physical examination is negative; blood count and urine are normal. Would desensitization with autogenous serum help if taken between attacks?**
Bernard Marcus, M.D., Raritan, N. J.

ANSWER.—Migraine associated with the menstrual cycle is extremely difficult to treat satisfactorily. A specific treatment thus far has not been brought forth.

GENERALIZED PRURITUS

To the Editor:—**A woman aged 38 has had severe pruritus for the past eighteen months which is generalized over the entire body including the vulva and anus. Her past history is entirely negative except for an amenorrhea for twelve months. The patient has been given sedatives, theelin and local applications without effect. Because of the severity of the pruritus, especially at night, she has indulged in alcohol for the past six months "to be relieved." Mental sequelae are feared unless the patient improves. A recent thorough study was made in a Philadelphia hospital including a dermatologic examination. "Nerves" was the only diagnosis established. Please suggest further treatment.**
M.D., Pennsylvania.

ANSWER.—The generalized pruritus almost certainly has no connection with the amenorrhea, which it preceded by about six months. Therefore it is hardly likely that restoration of regular menstruation, even if it can be accomplished, will relieve the itching. The fact that the pruritus involves the entire body and that careful physical and dermatologic examinations have failed to reveal a cause leads one to believe that there may be a large psychic element in the pruritus. In this event sedatives and local treatment will not give permanent relief. The patient should be seen by a psychiatrist, but it may be wise first to have another dermatologic consultation.

TREATMENT OF MIGRAINE

To the Editor:—**Please let me know the rationale concerning the use of nicotinic acid, nicotinic acid amide and sodium nicotinate in the migraine variety of headache. Which of these preparations would be most helpful in migraine? Would you also please let me know where sodium nicotinate may be obtained? Is the use of gynergen for migraine any longer acceptable?**
M.D., Connecticut.

ANSWER.—The treatment of migraine is still not as clearcut as might be desired. The explanation for the use of vasoconstricting drugs in some cases and vasodilating preparations in others is to be found in the apparent recognition of two types of migraine: (1) attacks with primary vasodilatation and (2) attacks with evanescent primary vasoconstriction followed by more prolonged vasodilatation. Nicotinic acid and sodium nicotinate are rationally employed in the early, transient vasoconstriction phase of the second type of migraine. The use of nicotinic acid amide is totally irrational for either type of migraine; the drug possesses neither vasodilating nor vasoconstricting properties. Nicotinic acid and sodium nicotinate would seem to be equally effective when used in equivalent quantities. Sodium nicotinate may be obtained from the Drug Products Company, Inc., Long Island City, N. Y.

Ergotamine tartrate (gynergen) is still one of the most effective drugs for use in the majority of migraine attacks, the resultant vasoconstriction acting against intracranial vasodilatation whether primary or secondary.

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Horton, B. T.; Peters, G. A., and Blumenthal, L. S.: A New Product in the Treatment of Migraine: A Preliminary Report, *Proc. Staff Meet., Mayo Clin.* **20**: 241 (July 11) 1945.

ANTIHISTAMINE DRUGS AND HYPERTENSION

To the Editor:—**A man aged 49 has been having attacks of hay fever for the past several years. During the last year or two he has developed a hypertension which responded to medical attention and rest. During the past year benadryl was prescribed and relief obtained from his hay fever. At the same time, however, he developed a high blood pressure, 192/120. Kindly advise whether or not the use of benadryl or pyribenzamine is indicated in this type of case. His pressure now is normal, 140/80.**
M.D., New Jersey.

ANSWER.—It is definitely not the customary action of either benadryl or pyribenzamine to produce a hypertension. As a matter of fact, although extensive studies have not as yet been reported on that phase, the present evidence (Friedlaender, Sidney, and Feinberg, S. M.: *J. Allergy* **17**:129 [May] 1946) seems to indicate that there is a tendency for these drugs to lower blood pressure. It should be added that any drug may on rare occasion exhibit side reactions decidedly different from its usual ones: hence the inquirer's observation should be rechecked on the particular patient.

ASTHMA AND ALTITUDE

To the Editor:—**A patient with long standing asthma is under my care and is contemplating a trip from Ohio to California. Would traveling in an airplane be harmful to him? Would the high altitude affect him in any way?**
M.D., Ohio.

ANSWER.—Asthma is not caused by anoxia, nor is the usual attack of asthma associated with anoxemia. The latter phenomenon is discernible only in the severe stages of status asthmaticus. On the other hand the high altitudes, owing in part to lesser amounts of air borne allergenic and nonallergenic irritants, lesser humidity and other conditions less easily understood, frequently improve the asthmatic condition. Unless the patient has cardiac decompensation the altitude should not harm him.

ANGULATION OF PENIS DUE TO SHORT FRENUM

To the Editor:—**A patient complains that on complete erection the head of the penis bends sharply downward interfering seriously with intromission. There is no history of venereal disease. This is not a case of plastic induration of the penis (Peyronie's disease). Examination is otherwise negative. What can be done for this condition?**
M.D., New York.

ANSWER.—An abnormally short and probably fibrous frenum can cause downward angulation of the head of the penis on erection. The treatment for the condition is surgical division of the frenum.